

SEQUENCE LISTING

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 SCARLATO Vincenzo
 SCARSELLI Maria
 GALEOTTI Cesira

<120> ANTIGENIC MENINGOCOCCAL PEPTIDES

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<140> US 10/031,289
 <141> 2002-05-31

<150> PCT/IB00/01026
 <151> 2000-07-13

<150> GB-9916529.2
 <151> 1999-07-14

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Gln

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 Glu Gly Ile Thr
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 Ser Ser

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Ile Arg Lys

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Pro

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Arg Arg Phe Ile
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Pro

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Ser Thr Val Lys
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Gln

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Val Gly Gly Asp Val Asn Ala
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Glu Gly Ile Ser
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Glu Gly Ile Thr
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Ser Ser

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Arg Thr Lys Ser Ile Ser Glu Arg Lys Asn Val
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Arg Arg Phe Ile
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Ser

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 <210> 1127

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<212> PRT
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Ile Ala Ala Glu Glu Asn Trp
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<210> 1141
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Val Lys Arg Asn Leu
1 5

<210> 1142
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<210> 1144
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<210> 1146
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Ser Phe Phe Glu Ile Leu Tyr
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 <210> 1164
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 <400> 1164
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 <400> 1165
 Lys Ile Ser Thr Gly Asn Thr Gly
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 <400> 1166
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Ser

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Val Lys Arg Asn Leu
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<210> 1190
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<210> 1193
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<400> 1193
Arg Lys Gln Glu Lys Arg
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Asn Asn Ser Phe Ser Asn

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 <400> 1592
 Asn Ala Arg Tyr
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 <210> 1593
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 <400> 1593
 Gln Ile Ala Asp Asn Thr Thr Leu Arg
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 <210> 1594
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 <400> 1594
 Leu Val Lys Arg Gly Asn Ile Asn Trp
 1 5

 <210> 1595
 <211> 13
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 <400> 1595
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 <210> 1597
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 <400> 1597
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<400> 1598
 Glu Pro Ala Asn Arg Ile Ser Ala
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<210> 1599
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<400> 1599
 Leu Ser Ile Lys Thr Gly Gly Lys Leu
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<400> 1600
 Leu Ser Ala Lys Gly Gly Asn Ala Gly Ala
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<210> 1601
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<400> 1601
 Ser Ser Leu Glu Ala Lys Gly Asn Ile
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<210> 1602
 <211> 14
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<400> 1602
 Thr Asp Leu Arg Gly Ser Lys Ile Thr Ala Gly Lys Asn Leu
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<210> 1603
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<400> 1603
 Thr Lys Gly Lys Leu Asn Ile
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<210> 1604

<211> 7
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Val Asn Asn Ser Phe Ser Asn
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<210> 1605
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<220>
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Gln Gln

<210> 1606
<211> 11
<212> PRT
<213> Neisseria meningitidis

<220>
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1 5 10

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<211> 8
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<400> 1607
Leu Gln Glu Glu Arg Asp Arg Leu
1 5

<210> 1608
<211> 16
<212> PRT
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<400> 1608
Ile Asn Lys Glu Val Lys Gly Lys Lys Pro Lys Gly Lys Glu Tyr Leu
1 5 10 15

<210> 1609
<211> 13
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Ile Ser Gly Ser Asp Ile Thr Ala Ser Lys Lys Leu Asn
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<210> 1610
<211> 7
<212> PRT
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<400> 1610
Lys Ala Ala Asp Ser Glu Ala
1 5

<210> 1611
<211> 34
<212> PRT
<213> Neisseria meningitidis

<400> 1611
Gly Ile Thr Asp Gln Tyr Glu Ile Gly Lys Pro Thr Tyr Lys Ser His
1 5 10 15
Tyr Asp Lys Ala Ala Leu Asn Lys Pro Ser Arg Leu Thr Gly Arg Thr
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Gly Val

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<212> PRT
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<400> 1612
Ala Leu Asp Asp Ala Arg Ile
1 5

<210> 1613
<211> 20
<212> PRT
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<400> 1613
Ser Glu Ile Lys Ala Pro Ser Gly Ser Ile Asp Ile Lys Ala His Ser
1 5 10 15

Asp Ile Val Leu
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<210> 1614
<211> 5

<212> PRT
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<400> 1614
Gly Gln Asn Asp Ala
1 5

<210> 1615
<211> 20
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<220>
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<222> 1 & 8-9 & 19-20
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1 5 10 15

Ser Thr Xaa Xaa
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Ala Gly Gly Asn Ile Glu Ala Asn Thr Thr Arg Phe
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<210> 1617
<211> 5
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<400> 1617
Ala Pro Ala Gly Lys
1 5

<210> 1618
<211> 20
<212> PRT
<213> Neisseria meningitidis

<400> 1618
Leu Ala Glu Glu Gly Ile His Lys His Glu Leu Asp Val Gln Lys Ser
1 5 10 15

Arg Arg Phe Ile
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<210> 1619
<211> 17
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<213> Neisseria meningitidis

<220>

<221> Variant

<222> 3

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Pro

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Ala Ala Thr Arg Ser Gly Trp Asp Thr Val Leu Glu

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<211> 5

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Thr Glu Phe Lys Thr

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<210> 1622

<211> 4

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<213> Neisseria meningitidis

<400> 1622

Gly Ala Asp Ile

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<211> 9

<212> PRT

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<220>

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<211> 11

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 Ile Gln Ser Glu Glu Lys Leu Glu Thr Asn Ser
 1 5 10

 <210> 1625
 <211> 11
 <212> PRT
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 <400> 1625
 Val Trp Gln Lys Gln Ala Gly Arg Gly Ser Thr
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 <210> 1626
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 <400> 1626
 Leu Lys Leu Pro Ser Phe Glu Ser Pro Thr Pro Pro Lys Leu Ser Ala
 1 5 10 15

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 <211> 18
 <212> PRT
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 Pro Glu

 <210> 1628
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 <400> 1628
 Asn Ile Asn Trp
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 <210> 1629
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 <400> 1629
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<210> 1631
<400> 1631
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<210> 1632
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<400> 1632
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1 5 10 15

Ser Thr Val Lys
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<210> 1633
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<400> 1633
Val Ala Asp Lys Ile Gly
1 5

<210> 1634
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<400> 1634
Asn Val Ser Asp Lys Gln Trp
1 5

<210> 1635
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<210> 1637
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<212> PRT
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 <400> 1637
 Lys Lys His Ser
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 <400> 1638
 Thr Ala Asn Ser Gln Gly Lys Gly Lys Gln Ala Gly
 1 5 10

 <210> 1639
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 <400> 1639
 Thr Ser Gly Asp Leu Cys Gly Lys Leu Lys Thr Thr Leu
 1 5 10

 <210> 1640
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 <210> 1641
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 <400> 1641
 Pro Asn Gly Arg Gly Leu Ser
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 <210> 1642
 <211> 6
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 <400> 1642
 Asp Val Asp Asn Lys Gly
 1 5

<210> 1643
 <211> 6
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 <400> 1643
 Asn Asn Asp Arg Asn Asn
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 <400> 1644
 Glu Val Arg Gly Thr Ala Ser Lys
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 <210> 1645
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 Gly Gln Lys Ala Asp
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 <400> 1648
 Asp Val Arg Gln
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 <210> 1649
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Gly Pro Gln Lys Val Asp Tyr Ala Ser
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<210> 1652
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Glu Ile Ser Ala
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<210> 1653
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Gly Arg Ile Glu Asn Ser Gly Arg Ile

1 5

<210> 1657
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 <212> PRT
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<400> 1657
 Ala Asp Gly Thr Glu Ala
 1 5

<210> 1658
 <211> 7
 <212> PRT
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<400> 1658
 Glu Thr Thr Glu Lys Gly Ala
 1 5

<210> 1659
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<400> 1659
 Gly Arg Ile Glu Ser Lys Gly
 1 5

<210> 1660
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<210> 1661
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 <212> PRT
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<400> 1661
 Asn Gly Ser Arg Pro Ala
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<210> 1662
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<220>
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 <223> Xaa is any amino acid

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 <210> 1664
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 <210> 1666
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 <212> PRT
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 Ile Glu Ala Lys Asp Thr Ala His Ile Glu Ser Gly Lys Pro Leu Ser
 1 5 10 15

 <210> 1667
 <211> 11
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 <400> 1667
 Arg Leu Asn Asn Gly Asn Ile Lys Gly Gly Lys
 1 5 10

 <210> 1668
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 <212> PRT
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 Ala Asp Asp Asn Ile Thr

1 5

<210> 1669
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<400> 1669
 Thr Gly Lys Asp Leu Asn Leu Asn Val Asp Lys Asp Leu Ser
 1 5 10

<210> 1670
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 <212> PRT
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 Leu Lys Ser Asp Asn Ala
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<210> 1671
 <211> 4
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<400> 1671
 Gly Thr Ser Lys
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<210> 1672
 <211> 9
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<400> 1672
 Leu Thr Ala Ser Lys Asp Met Gly Val
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<210> 1673
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<400> 1673
 Asn Leu Arg Thr Asn Ser
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Arg Asn Thr Lys Leu Asn Ala
1 5

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Lys Ala Leu Glu
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<223> Xaa is any amino acid

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Ala Lys Ala Asp Val Xaa
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Ser Val Gly Lys Gly Arg Leu Lys Ala Asp Asn Thr Asn
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Gly Asp Gly Lys Gln Arg Asn Ser Ile Asn
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Lys Asn Asn Gly Gly Asn Ala Asp Leu Lys Asn
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<210> 1682
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 <400> 1682
 Ala Lys Ser Gly
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 <210> 1683
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 <212> PRT
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 <400> 1683
 His Ser Asp Arg Ala Leu Ser
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 Glu Asn Thr Lys Leu Glu Ser Thr His
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 Ala Gln His Glu Arg Val Thr
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 <210> 1686
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 <400> 1686
 Asp Lys Leu Pro Ser
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 <210> 1688
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 Leu Val Lys Arg Gly Asn
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<210> 1689
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 Lys Thr Leu Glu Asp Asn Ala Glu Leu Lys Pro Leu Ala
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 <210> 1691
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 <210> 1692
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 Pro Ala Asn Arg Ile Ser Ala
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 <210> 1694
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 <210> 1695
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 Lys Gly Gly Asn
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 <210> 1696
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 Ser Ser Leu Glu Ala Lys Gly Asn Ile
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 <210> 1697
 <211> 10
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 <213> *Neisseria meningitidis*

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 Thr Asp Leu Arg Gly Ser Lys Ile Thr Ala
 1 5 10

<210> 1698
 <211> 7
 <212> PRT
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<400> 1698
 Thr Lys Gly Lys Leu Asn Ile
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<210> 1699
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<220>
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 <222> 3-5
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<220>
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 <211> 8
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 Leu Gln Glu Glu Arg Asp Arg Leu
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<210> 1702
 <211> 16
 <212> PRT
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<400> 1702

Ile Asn Lys Glu Val Lys Gly Lys Lys Pro Lys Gly Lys Glu Tyr Leu
1 5 10 15

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<400> 1704
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1 5

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<400> 1705
Lys Ala Ala Asp Ser Glu Ala
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<210> 1706
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Gly Ile Thr Asp
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<400> 1707
Tyr Glu Ile Gly Lys Pro Thr Tyr
1 5

<210> 1708
<211> 16
<212> PRT
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Ser His Tyr Asp Lys Ala Ala Leu Asn Lys Pro Ser Arg Leu Thr Gly
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<400> 1709

Ala Leu Asp Asp Ala Arg Ile

1 5

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Ser Glu Ile Lys Ala Pro Ser Gly Ser Ile Asp Ile Lys Ala His Ser

1 5 10 15

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Gly Gln Asn Asp

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<400> 1714

Gly Asn Ile Glu Ala Asn Thr

1 5

<210> 1715

<211> 20

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Arg Arg Phe Ile
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Thr Glu Phe Lys Thr
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Val Xaa Glu Lys Ala Arg Val Asp Ala
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Ile Gln Ser Glu Glu Lys Leu Glu Thr
1 5

<210> 1722

<211> 7
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<400> 1722
Gln Ala Gly Arg Gly Ser Thr
1 5

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<400> 1723
Glu Ser Pro Thr Pro Pro Lys Leu Ser Ala
1 5 10

<210> 1724
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Ile Pro Lys Gly Asn Leu Lys Thr Glu Ile Glu Lys Leu Ser Lys Gln
1 5 10 15

Pro Glu

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Val Ala Asp Lys Ile Gly
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<400> 1731
Gly Gln Cys Arg Thr Asp
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Val Leu Ser Lys Asp Ile Phe
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<400> 1735
Gln Ala Val Arg Ala Lys Ala
1 5

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<400> 1736
Leu Ser Lys Asp Ile Phe
1 5

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 <400> 1737
 Gln Thr Ala Asp
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 <400> 1738
 Gln Ser His Ala Asp Ser Val Arg Leu
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 <400> 1739
 Val Leu Ser Arg Gln Gln Gln Gly Leu Arg
 1 5 10

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 Val Asp Asp Arg Leu Leu Leu Arg Lys Cys Arg
 1 5 10

 <210> 1741
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 Ser Gln Ala Arg Ala Asp Lys Arg Asp Asn Gly Asn Arg
 1 5 10

 <210> 1742
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 <213> Neisseria meningitidis

 <400> 1742
 Ile His Ser Arg Pro Pro Asp Ala Ser Arg
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 <210> 1743
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<210> 1744
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<400> 1745
Gln Thr Ala Asp
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<210> 1746
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<213> Neisseria meningitidis

<400> 1746
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<210> 1747
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<213> Neisseria meningitidis

<400> 1747
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<210> 1748
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<400> 1748
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1 5 10

<210> 1749
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<213> Neisseria meningitidis

<400> 1749
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1 5 10

<210> 1750
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<400> 1750
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<210> 1752
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<400> 1752
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<210> 1753
<211> 7
<212> PRT
<213> Neisseria meningitidis

<400> 1753
Val Leu Ser Lys Asp Ile Phe
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<210> 1754
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<210> 1755
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<210> 1756
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<400> 1756
Gln Thr Ala Asp
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<210> 1757
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<400> 1757
Gln Ser His Ala Asp Gly Val Arg Leu
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<400> 1758
Phe Arg Thr Arg
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<400> 1759
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<210> 1760
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<400> 1760
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<210> 1761
<211> 16
<212> PRT
<213> Neisseria meningitidis

<400> 1761
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<210> 1762
<211> 9
<212> PRT
<213> Neisseria meningitidis

<400> 1762
Glu Ile His Ser Arg Pro Pro Asp Val
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<210> 1763
<400> 1763
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<210> 1764
<211> 4
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<400> 1764

Gln Thr Ala Asp

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<210> 1765

<211> 7

<212> PRT

<213> Neisseria meningitidis

<400> 1765

Ser His Ala Asp Gly Val Arg

1 5

<210> 1766

<211> 5

<212> PRT

<213> Neisseria meningitidis

<400> 1766

Arg Gln Gln Gln Gly

1 5

<210> 1767

<211> 8

<212> PRT

<213> Neisseria meningitidis

<400> 1767

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1 5

<210> 1768

<211> 16

<212> PRT

<213> Neisseria meningitidis

<400> 1768

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1 5 10 15

<210> 1769

<211> 8

<212> PRT

<213> Neisseria meningitidis

<400> 1769

Ile His Ser Arg Pro Pro Asp Val

1 5

<210> 1770

<211> 736

<212> DNA

<213> Neisseria meningitidis

<400> 1770

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aggagtacta acagccagag aaatcacctt caaagccggc gacaacctga aaatcaaaca 240
aaacggcaca aacttcacct actcgtgtaa aaaagacctc acagatctga ccagtgttgg 300
aactgaaaaa ttatcgttta gcgcaaacgg caataaagtc aacatcacaa gcgacaccaa 360
aggcttgaat ttgtcgaaag aaacggctgg sacgaacggc gacaccacgg ttcattctgaa 420
cggtatttgt tcgactttga ccgatacgct gctgaatacc ggagcgacca caaacgtaac 480
caacgacaac gttaccgatg acgagaaaaa acgtgcggca agcgtttaaag acgtattaaa 540
cgctggctgg aacattaaag gcgttaaacc cggtaacaac gcttcgcata acgttgattt 600
cgctccgact tacgacacag tcgagttcct gagcgagat acgaaaaaaa cgactgttaa 660
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<210> 1771
<211> 245
<212> PRT
<213> Neisseria meningitidis

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<220>
<221> misc_feature
<222> (1)...(245)
<223> Xaa is any amino acid

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Glu Glu Asp Leu Tyr Leu Asp Pro Val Gln Arg Thr Val Ala Val Leu
      20                      25                      30

Ile Val Asn Ser Asp Lys Glu Gly Thr Gly Glu Lys Glu Lys Val Glu
      35                      40                      45

Glu Asn Ser Asp Trp Ala Val Tyr Phe Asn Glu Lys Gly Val Leu Thr
      50                      55                      60

Ala Arg Glu Ile Thr Xaa Lys Ala Gly Asp Asn Leu Lys Ile Lys Gln
      65                      70                      75                      80

Asn Gly Thr Asn Phe Thr Tyr Ser Leu Lys Lys Asp Leu Thr Asp Leu
      85                      90                      95

Thr Ser Val Gly Thr Glu Lys Leu Ser Phe Ser Ala Asn Gly Asn Lys
      100                     105                     110

Val Asn Ile Thr Ser Asp Thr Lys Gly Leu Asn Phe Ala Lys Glu Thr
      115                     120                     125

Ala Gly Thr Asn Gly Asp Thr Thr Val His Leu Asn Gly Ile Gly Ser
      130                     135                     140

Thr Leu Thr Asp Thr Leu Leu Asn Thr Gly Ala Thr Thr Asn Val Thr
      145                     150                     155                     160

Asn Asp Asn Val Thr Asp Asp Glu Lys Lys Arg Ala Ala Ser Val Lys
      165                     170                     175

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Asp Val Leu Asn Ala Gly Trp Asn Ile Lys Gly Val Lys Pro Gly Thr
180 185 190

Thr Ala Ser Asp Asn Val Asp Phe Val Arg Thr Tyr Asp Thr Val Glu
195 200 205

Phe Leu Ser Ala Asp Thr Lys Thr Thr Thr Val Asn Val Glu Ser Lys
210 215 220

Asp Asn Gly Lys Lys Thr Glu Val Lys Ile Gly Ala Lys Thr Ser Val
225 230 235 240

Ile Lys Glu Lys Asp
245

<210> 1772

<211> 1776

<212> DNA

<213> Neisseria meningitidis

<400> 1772

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acactgttgt ttgcaacggt tcaggcaagt gctaacaatg aagagcaaga agaagattta 180
tatttagacc ccgtacaacg cactgttgcc gtgttgatag tcaattccga taagaaggcg 240
acgggagaaa aagaaaaagt agaagaaaat tcagattggg cagtatatatt caacgagaaa 300
ggagtactaa cagccagaga aatcaccctc aaagccggcg acaacctgaa aatcaaaaaa 360
aacggcacaa acttcacctc ctgcgtgaaa aaagacctca cagatctgac cagtgttgga 420
actgaaaaat tatcgtttag cgcaaacggc aataaagtca acatcacaa cgacacaaaa 480
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ggatttgggt cgactttgac cgatacgtg ctgaataacc gagcgaccac aaacgtaac 600
aacgacaacg ttaccgatga cgagaaaaaa cgtgcggcaa gcgttaaaaga cgtattaaac 660
gctggctgga acattaaagg cgtaaaccgc ggtacaacag ctcccgataa cgttgatttc 720
gtccgcactt acgacacagt cgagttcttg agcgcagata cgaaaaaac gactgttaat 780
gtggaaagca aagacaacgg caagaaaacc gaagttaaaa tcggtgcgaa gactctctgt 840
attaaagaaa aagacggtaa gttggttact ggtaaaagca aaggcgagaa tggttcttc 900
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agttaaagtg atcaaggcaa catcacctgt atgtatgatg taaatgcgg cgatgcccta 1140
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tcgggcaaa gtcacagcgg caatgtttcg ccgagcaagg gaaagatgga tgaaccgctc 1260
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atggcgatcg cggcggaacg ttatcgcgcg gaacgcgggt acgccaatcg ctactccagt 1680
atttcgacg ccggaatatt gattatcaaa ggcacggctt ccggcaattc gcgcggccat 1740
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<210> 1773

<211> 591

<212> PRT
<213> Neisseria meningitidis

<400> 1773

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35 40 45
Ala Ser Ala Asn Asn Glu Glu Gln Glu Glu Asp Leu Tyr Leu Asp Pro
50 55 60
Val Gln Arg Thr Val Ala Val Leu Ile Val Asn Ser Asp Lys Glu Gly
65 70 75 80
Thr Gly Glu Lys Glu Lys Val Glu Glu Asn Ser Asp Trp Ala Val Tyr
85 90 95
Phe Asn Glu Lys Gly Val Leu Thr Ala Arg Glu Ile Thr Leu Lys Ala
100 105 110
Gly Asp Asn Leu Lys Ile Lys Gln Asn Gly Thr Asn Phe Thr Tyr Ser
115 120 125
Leu Lys Lys Asp Leu Thr Asp Leu Thr Ser Val Gly Thr Glu Lys Leu
130 135 140
Ser Phe Ser Ala Asn Gly Asn Lys Val Asn Ile Thr Ser Asp Thr Lys
145 150 155 160
Gly Leu Asn Phe Ala Lys Glu Thr Ala Gly Thr Asn Gly Asp Thr Thr
165 170 175
Val His Leu Asn Gly Ile Gly Ser Thr Leu Thr Asp Thr Leu Leu Asn
180 185 190
Thr Gly Ala Thr Thr Asn Val Thr Asn Asp Asn Val Thr Asp Asp Glu
195 200 205
Lys Lys Arg Ala Ala Ser Val Lys Asp Val Leu Asn Ala Gly Trp Asn
210 215 220
Ile Lys Gly Val Lys Pro Gly Thr Thr Ala Ser Asp Asn Val Asp Phe
225 230 235 240
Val Arg Thr Tyr Asp Thr Val Glu Phe Leu Ser Ala Asp Thr Lys Thr
245 250 255
Thr Thr Val Asn Val Glu Ser Lys Asp Asn Gly Lys Lys Thr Glu Val
260 265 270
Lys Ile Gly Ala Lys Thr Ser Val Ile Lys Glu Lys Asp Gly Lys Leu
275 280 285

Val Thr Gly Lys Asp Lys Gly Glu Asn Gly Ser Ser Thr Asp Glu Gly
 290 295 300
 Glu Gly Leu Val Thr Ala Lys Glu Val Ile Asp Ala Val Asn Lys Ala
 305 310 315 320
 Gly Trp Arg Met Lys Thr Thr Thr Ala Asn Gly Gln Thr Gly Gln Ala
 325 330 335
 Asp Lys Phe Glu Thr Val Thr Ser Gly Thr Asn Val Thr Phe Ala Ser
 340 345 350
 Gly Lys Gly Thr Thr Ala Thr Val Ser Lys Asp Asp Gln Gly Asn Ile
 355 360 365
 Thr Val Met Tyr Asp Val Asn Val Gly Asp Ala Leu Asn Val Asn Gln
 370 375 380
 Leu Gln Asn Ser Gly Trp Asn Leu Asp Ser Lys Ala Val Ala Gly Ser
 385 390 395 400
 Ser Gly Lys Val Ile Ser Gly Asn Val Ser Pro Ser Lys Gly Lys Met
 405 410 415
 Asp Glu Thr Val Asn Ile Asn Ala Gly Asn Asn Ile Glu Ile Thr Arg
 420 425 430
 Asn Gly Lys Asn Ile Asp Ile Ala Thr Ser Met Thr Pro Gln Phe Ser
 435 440 445
 Ser Val Ser Leu Gly Ala Gly Ala Asp Ala Pro Thr Leu Ser Val Asp
 450 455 460
 Gly Asp Ala Leu Asn Val Gly Ser Lys Lys Asp Asn Lys Pro Val Arg
 465 470 475 480
 Ile Thr Asn Val Ala Pro Gly Val Lys Glu Gly Asp Val Thr Asn Val
 485 490 495
 Ala Gln Leu Lys Gly Val Ala Gln Asn Leu Asn Asn Arg Ile Asp Asn
 500 505 510
 Val Asp Gly Asn Ala Arg Ala Gly Ile Ala Gln Ala Ile Ala Thr Ala
 515 520 525
 Gly Leu Val Gln Ala Tyr Leu Pro Gly Lys Ser Met Met Ala Ile Gly
 530 535 540
 Gly Gly Thr Tyr Arg Gly Glu Ala Gly Tyr Ala Ile Gly Tyr Ser Ser
 545 550 555 560
 Ile Ser Asp Gly Gly Asn Trp Ile Ile Lys Gly Thr Ala Ser Gly Asn
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 Ser Arg Gly His Phe Gly Ala Ser Ala Ser Val Gly Tyr Gln Trp
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<210> 1774
 <211> 1779
 <212> DNA
 <213> *Neisseria meningitidis*

<220>
 <221> misc_feature
 <222> (1)...(1779)
 <223> n = A,T,C or G

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acactgttgt ttgcaaccgt tcaggcgaat gctaccgatg aagatgaaga agaagagtta 180
gaatccgtac aacgctctgt cgtaggggag attcaagcca gtatggaagc cagcggcgaa 240
ttggaaacga tatcattatc aatgactaac gacagcaagg aatttgtaga cccatacata 300
gtagttagcc tcaaaagccgg cgacaacctg aaaatcaaac aaaaacccaa tgaaaacacc 360
aatgccagta gcttcacctc ctgcgtgaaa aaagacctca caggcctgat caatgttgaa 420
actgaaaaat tatcgtttgg cgcaaacggc aagaaagtca acatcataag cgacacccaa 480
ggcttgaatt tcgcgaagaa aacggctggg acgaacggcg accaccggt tcactgtgaa 540
ggatcgggtt cgactttgac cgatacgctt gcggtttott ctgcttctca cgttgatgcg 600
ggtaacncaa gtacacatta cactcgtgca gcaagtatta aggatgtgtt gaatgcgggt 660
tggaaatatta agggtgttaa annnggctca acaactggct aatcagaaaa tctcgatttc 720
gtccgcactt acgacacagt cgagttcttg agcgcagata cgnaaacacg gacngttaat 780
gtggaaagca aagacaacgg caagagaacc gaagttaaaa tcgggtcgaa gacttctgtt 840
attaaagaaa aagacggtaa gttggttact ggtaaaagca aaggcgagaa tggttcttct 900
acagacgaag gcgaaggctt agtgactgca aaagaagtga ttgatgcagt aaacaaggct 960
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agtaaaagat atcaaggcaa catcactggt atgtatgatg taaatctcgg cgaatcccta 1140
aacgtcaatc agotgcaaaa cagcggttgg aatttggatt ccaaaagcgg tgcaggttct 1200
tcgggcaaa gtcacagcgg caatgtttcg ccgagcaagg gaaagatgga tgaaccgctc 1260
aacattaatg ccggcaacaa catcgagatt agccgcaacc gtaaaaatat cgacatcgcc 1320
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cgaattacca atgtcgcccc gggcggttaa ganggggatg ttacaaacgt cncaaacctt 1500
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atgatggcga tcggcgccgg cacttatcgc ggcgaaagcg gttacgccat cggctactcc 1680
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<210> 1775
 <211> 592
 <212> PRT
 <213> *Neisseria meningitidis*

<220>
 <221> misc_feature
 <222> (1)...(592)
 <223> Xaa is any amino acid

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<400> 1775
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			20					25					30		
Thr	Val	Lys	Thr	Ala	Val	Leu	Ala	Thr	Leu	Leu	Phe	Ala	Thr	Val	Gln
		35					40					45			
Ala	Asn	Ala	Thr	Asp	Glu	Asp	Glu	Glu	Glu	Glu	Leu	Glu	Ser	Val	Gln
		50					55					60			
Arg	Ser	Val	Val	Gly	Ser	Ile	Gln	Ala	Ser	Met	Glu	Gly	Ser	Gly	Glu
		65					70					75			80
Leu	Glu	Thr	Ile	Ser	Leu	Ser	Met	Thr	Asn	Asp	Ser	Lys	Glu	Phe	Val
			85						90					95	
Asp	Pro	Tyr	Ile	Val	Val	Thr	Leu	Lys	Ala	Gly	Asp	Asn	Leu	Lys	Ile
			100						105					110	
Lys	Gln	Asn	Thr	Asn	Glu	Asn	Thr	Asn	Ala	Ser	Ser	Phe	Thr	Tyr	Ser
		115					120					125			
Leu	Lys	Lys	Asp	Leu	Thr	Gly	Leu	Ile	Asn	Val	Xaa	Thr	Glu	Lys	Leu
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Ser	Phe	Gly	Ala	Asn	Gly	Lys	Lys	Val	Asn	Ile	Ile	Ser	Asp	Thr	Lys
		145					150					155			160
Gly	Leu	Asn	Phe	Ala	Lys	Glu	Thr	Ala	Gly	Thr	Asn	Gly	Asp	Thr	Thr
			165						170					175	
Val	His	Leu	Asn	Gly	Ile	Gly	Ser	Thr	Leu	Thr	Asp	Thr	Leu	Ala	Gly
			180						185					190	
Ser	Ser	Ala	Ser	His	Val	Asp	Ala	Gly	Asn	Xaa	Ser	Thr	His	Tyr	Thr
		195					200						205		
Arg	Ala	Ala	Ser	Ile	Lys	Asp	Val	Leu	Asn	Ala	Gly	Trp	Asn	Ile	Lys
		210					215					220			
Gly	Val	Lys	Xaa	Gly	Ser	Thr	Thr	Gly	Gln	Ser	Glu	Asn	Val	Asp	Phe
		225					230					235			240
Val	Arg	Thr	Tyr	Asp	Thr	Val	Glu	Phe	Leu	Ser	Ala	Asp	Thr	Xaa	Thr
			245						250					255	
Thr	Thr	Val	Asn	Val	Glu	Ser	Lys	Asp	Asn	Gly	Lys	Arg	Thr	Glu	Val
			260						265				270		
Lys	Ile	Gly	Ala	Lys	Thr	Ser	Val	Ile	Lys	Glu	Lys	Asp	Gly	Lys	Leu
		275					280					285			
Val	Thr	Gly	Lys	Gly	Lys	Gly	Glu	Asn	Gly	Ser	Ser	Thr	Asp	Glu	Gly
		290					295					300			
Glu	Gly	Leu	Val	Thr	Ala	Lys	Glu	Val	Ile	Asp	Ala	Val	Asn	Lys	Ala

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Gly Trp Arg Met Lys Thr Thr Thr Ala Asn Gly Gln Thr Gly Gln Ala	325		330			
Asp Lys Phe Glu Thr Val Thr Ser Gly Thr Asn Val Thr Phe Ala Ser	340		345		350	
Gly Lys Gly Thr Thr Ala Thr Val Ser Lys Asp Asp Gln Gly Asn Ile	355		360		365	
Thr Val Met Tyr Asp Val Asn Val Gly Asp Ala Leu Asn Val Asn Gln	370		375		380	
Leu Gln Asn Ser Gly Trp Asn Leu Asp Ser Lys Ala Val Ala Gly Ser	385		390		395	400
Ser Gly Lys Val Ile Ser Gly Asn Val Ser Pro Ser Lys Gly Lys Met	405		410			415
Asp Glu Thr Val Asn Ile Asn Ala Gly Asn Asn Ile Glu Ile Ser Arg	420		425		430	
Asn Gly Lys Asn Ile Asp Ile Ala Thr Ser Met Ala Pro Gln Phe Ser	435		440		445	
Ser Val Ser Leu Gly Ala Gly Ala Asp Ala Pro Thr Leu Ser Val Asp	450		455		460	
Asp Glu Gly Ala Leu Asn Val Gly Ser Lys Asp Ala Asn Lys Pro Val	465		470		475	480
Arg Ile Thr Asn Val Ala Pro Gly Val Lys Xaa Gly Asp Val Thr Asn	485		490			495
Val Xaa Gln Leu Lys Gly Val Ala Gln Asn Leu Asn Asn Arg Ile Asp	500		505			510
Asn Val Asp Gly Asn Ala Arg Ala Gly Ile Ala Gln Ala Ile Ala Thr	515		520		525	
Ala Gly Leu Val Gln Ala Tyr Leu Pro Gly Lys Ser Met Met Ala Ile	530		535		540	
Gly Gly Gly Thr Tyr Arg Gly Glu Ala Gly Tyr Ala Ile Gly Tyr Ser	545		550		555	560
Ser Ile Ser Asp Gly Gly Asn Trp Ile Ile Lys Gly Thr Ala Ser Gly	565		570			575
Asn Ser Arg Gly His Phe Gly Ala Ser Ala Ser Val Gly Tyr Gln Trp	580		585			590

<210> 1776

<211> 492

<212> DNA
<213> *Neisseria meningitidis*

<400> 1776
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ggcgcgctcg ttaccgtcaa aaccgcgcgc ggcgacgttc aaataccgca aaaccccgaa 180
cgcatcgccg tttacgattt gggatgtgtc gacaccttga gcaaaactggg cgtgaaaacc 240
ggtttgcgcg tcgataaaaa ccgcctgcgcg tatttagagg aatatttcaa aacgacaaaa 300
cctgcgcgca ctttgttcga gcgcgattac gaaacgctca acgctttaca accgcagctc 360
atcatcatcg gcagccgcgcg cgccaaggcg tttgacaaat tgaacgaaat cgcgccgacc 420
atcgrmwatga ccgcgcgatac cgccaacctc aaagaaagtg ccaargaggc atcgacgctg 480
gcgcaaatct tc 492

<210> 1777
<211> 164
<212> PRT
<213> *Neisseria meningitidis*

<220>
<221> misc_feature
<222> (1)...(164)
<223> Xaa is any amino acid

<400> 1777
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20 25 30
Ala Val Ser Ala Ala Gln Thr Glu Gly Ala Ser Val Thr Val Lys Thr
35 40 45
Ala Arg Gly Asp Val Gln Ile Pro Gln Asn Pro Glu Arg Ile Ala Val
50 55 60
Tyr Asp Leu Gly Met Leu Asp Thr Leu Ser Lys Leu Gly Val Lys Thr
65 70 75 80
Gly Leu Ser Val Asp Lys Asn Arg Leu Pro Tyr Leu Glu Glu Tyr Phe
85 90 95
Lys Thr Thr Lys Pro Ala Gly Thr Leu Phe Glu Pro Asp Tyr Glu Thr
100 105 110
Leu Asn Ala Tyr Lys Pro Gln Leu Ile Ile Ile Gly Ser Arg Ala Ala
115 120 125
Lys Ala Phe Asp Lys Leu Asn Glu Ile Ala Pro Thr Ile Xaa Xaa Thr
130 135 140
Ala Asp Thr Ala Asn Leu Lys Glu Ser Ala Lys Glu Ala Ser Thr Leu
145 150 155 160
Ala Gln Ile Phe

<210> 1778
 <211> 966
 <212> DNA
 <213> *Neisseria meningitidis*

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 caaaattccg actctgcccc acaagccaaa gaacaggcgcg tttccgcgcg aaaaaccgaa 120
 ggccgctccg ttaccgtcaa aaccgcgcgc ggccagcttc aaataccgca aaaccgccaa 180
 cgcacgcgcg tttacgattt gggtatgctc gacaccttga gcaaaactggg cgtgaaaacc 240
 gggtttgcgc tctgataaaa ccgcctgcgc tattttagagg aatattttcaa aacgacaaaa 300
 cctgccggca ctttgttcga gccggattac gaaacgctca acgcttacia accgcagctc 360
 atcatcatcg gcagccgcgc cgccaaggcg tttgacaaat tgaacgaaat cgcgccgacc 420
 atcgaaatga ccgcgatac cgccaacctc aaagaaagt ccaagagcgc catcgacgcg 480
 ctggcgcaaa tcttcggcaa acaggcggaa gccgacaagc tgaaggcggg aatcgacgcg 540
 tcttttgaag ccgcgaaaaa tgcgcacaaa ggtaaggcca aaggtttggt gattttggtc 600
 aacggcggca agatgtcggc tttcggcccg tcttcacgct tgggcggctg gctgcacaaa 660
 gacatcgccg tttccgctgt cgtatgaatca attaaagaag gcagccacgg tcagcctatc 720
 agctttgaat acctgaaaga gaaaaatccc gactggctgt ttgtccttga ccgaagcgcg 780
 gccatcgccg aagaggggtc gccggcgaaa gactgtgttg ataatccgt ggttgcggaa 840
 acaaccgctt ggaaaaaagg acaggtcgtg tacctcgttc ctgaaactta tttggcagcc 900
 ggtggcgcgc aagagctgct gaatgcaagc aaacagggtt ccgacgcttt taacgcggca 960
 aaataa 966

<210> 1779
 <211> 321
 <212> PRT
 <213> *Neisseria meningitidis*

<400> 1779
 Met Leu Arg Leu Thr Ala Leu Ala Val Cys Thr Ala Leu Ala Leu Gly
 5 10 15
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 20 25 30
 Ala Val Ser Ala Ala Gln Thr Glu Gly Ala Ser Val Thr Val Lys Thr
 35 40 45
 Ala Arg Gly Asp Val Gln Ile Pro Gln Asn Pro Glu Arg Ile Ala Val
 50 55 60
 Tyr Asp Leu Gly Met Leu Asp Thr Leu Ser Lys Leu Gly Val Lys Thr
 65 70 75 80
 Gly Leu Ser Val Asp Lys Asn Arg Leu Pro Tyr Leu Glu Glu Tyr Phe
 85 90 95
 Lys Thr Thr Lys Pro Ala Gly Thr Leu Phe Glu Pro Asp Tyr Glu Thr
 100 105 110
 Leu Asn Ala Tyr Lys Pro Gln Leu Ile Ile Ile Gly Ser Arg Ala Ala
 115 120 125

Lys Ala Phe Asp Lys Leu Asn Glu Ile Ala Pro Thr Ile Glu Met Thr
130 135 140

Ala Asp Thr Ala Asn Leu Lys Glu Ser Ala Lys Glu Arg Ile Asp Ala
145 150 155 160

Leu Ala Gln Ile Phe Gly Lys Gln Ala Glu Ala Asp Lys Leu Lys Ala
165 170 175

Glu Ile Asp Ala Ser Phe Glu Ala Ala Lys Thr Ala Ala Gln Gly Lys
180 185 190

Gly Lys Gly Leu Val Ile Leu Val Asn Gly Gly Lys Met Ser Ala Phe
195 200 205

Gly Pro Ser Ser Arg Leu Gly Gly Trp Leu His Lys Asp Ile Gly Val
210 215 220

Pro Ala Val Asp Glu Ser Ile Lys Glu Gly Ser His Gly Gln Pro Ile
225 230 235 240

Ser Phe Glu Tyr Leu Lys Glu Lys Asn Pro Asp Trp Leu Phe Val Leu
245 250 255

Asp Arg Ser Ala Ala Ile Gly Glu Glu Gly Gln Ala Ala Lys Asp Val
260 265 270

Leu Asp Asn Pro Leu Val Ala Glu Thr Thr Ala Trp Lys Lys Gly Gln
275 280 285

Val Val Tyr Leu Val Pro Glu Thr Tyr Leu Ala Ala Gly Gly Ala Gln
290 295 300

Glu Leu Leu Asn Ala Ser Lys Gln Val Ala Asp Ala Phe Asn Ala Ala
305 310 315 320

Lys

<210> 1780

<211> 966

<212> DNA

<213> *Neisseria meningitidis*

<400> 1780

atgttacgtt tgactgcttt agccgtatgc accgcctcgc ctttgggcgc gtgttcgccg 60
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ggcgtgtccg ttaccgtcaa aacggcgcgc ggcgatgttc aaataccgca aaaccccgaa 180
cgtatcgccg ttatcgattt gggatatgtc gacaccttga gcaaaactgg cgtgaaaaac 240
ggtttgccg togataaaaa ccgcctgccc tatattagag aatatttcaa aacgacaaaa 300
cctgcgcgaa ctttgttcga gccggattac gaaacgtca acgcttacaa accgcagctc 360
atcatcatcg gcagccgcgc agccaaaagc ttgacaaaat tgaacgaaat cgcgcgcgacc 420
atcgaaatga ccgcgcgata cgccaaacct aaagaaaagt ccaaaagagc tatcgacgcg 480
ctggcgcaaa tcttcggcaa aaaggcgcaa gccgacaagc tgaaggcgga aatcgacgcg 540
tcttttgaag ccgcgaaaaa tgccgcgcaa ggcaaaaggca agggtttggt gattttgtgc 600
aacggcgcaa agatgtccgc cttcggccgc tcttcacgac tggcgcgctg gctgcacaaa 660

gacatcggcg ttccecgctg tgacgaagcc atcaaagaag gcagccacgg tcagcctatc 720
 agctttgaat acctgaaaga gaaaaatccc gactggctgt ttgtccttga ccgcagcgcg 780
 gccatcggcg aagaggggtca ggcggcgaaa gactgtgtga acaatccgct ggttgccgaa 840
 acaaccgctt ggaaaaaagg acaagtcgtt tacctgtgtc ctgaaactta ttggcagcc 900
 ggtggcgcgc aagagctact gaatgcaagc aaacaggttg ccgacgcttt taacgcggca 960
 aaataa 966

<210> 1781

<211> 321

<212> PRT

<213> *Neisseria meningitidis*

<400> 1781

Met Leu Arg Leu Thr Ala Leu Ala Val Cys Thr Ala Leu Ala Leu Gly
 5 10 15

Ala Cys Ser Pro Gln Asn Ser Asp Ser Ala Pro Gln Ala Lys Glu Gln
 20 25 30

Ala Val Ser Ala Ala Gln Ser Glu Gly Val Ser Val Thr Val Lys Thr
 35 40 45

Ala Arg Gly Asp Val Gln Ile Pro Gln Asn Pro Glu Arg Ile Ala Val
 50 55 60

Tyr Asp Leu Gly Met Leu Asp Thr Leu Ser Lys Leu Gly Val Lys Thr
 65 70 75 80

Gly Leu Ser Val Asp Lys Asn Arg Leu Pro Tyr Leu Glu Glu Tyr Phe
 85 90 95

Lys Thr Thr Lys Pro Ala Gly Thr Leu Phe Glu Pro Asp Tyr Glu Thr
 100 105 110

Leu Asn Ala Tyr Lys Pro Gln Leu Ile Ile Ile Gly Ser Arg Ala Ala
 115 120 125

Lys Ala Phe Asp Lys Leu Asn Glu Ile Ala Pro Thr Ile Glu Met Thr
 130 135 140

Ala Asp Thr Ala Asn Leu Lys Glu Ser Ala Lys Glu Arg Ile Asp Ala
 145 150 155 160

Leu Ala Gln Ile Phe Gly Lys Lys Ala Glu Ala Asp Lys Leu Lys Ala
 165 170 175

Glu Ile Asp Ala Ser Phe Glu Ala Ala Lys Thr Ala Ala Gln Gly Lys
 180 185 190

Gly Lys Gly Leu Val Ile Leu Val Asn Gly Gly Lys Met Ser Ala Phe
 195 200 205

Gly Pro Ser Ser Arg Leu Gly Gly Trp Leu His Lys Asp Ile Gly Val
 210 215 220

Pro Ala Val Asp Glu Ala Ile Lys Glu Gly Ser His Gly Gln Pro Ile

225 230 235 240
 Ser Phe Glu Tyr Leu Lys Glu Lys Asn Pro Asp Trp Leu Phe Val Leu
 245 250 255
 Asp Arg Ser Ala Ala Ile Gly Glu Glu Gly Gln Ala Ala Lys Asp Val
 260 265 270
 Leu Asn Asn Pro Leu Val Ala Glu Thr Thr Ala Trp Lys Lys Gly Gln
 275 280 285
 Val Val Tyr Leu Val Pro Glu Thr Tyr Leu Ala Ala Gly Gly Ala Gln
 290 295 300
 Glu Leu Leu Asn Ala Ser Lys Gln Val Ala Asp Ala Phe Asn Ala Ala
 305 310 315 320
 Lys

<210> 1782
 <211> 375
 <212> DNA
 <213> *Neisseria meningitidis*

<400> 1782
 atgaaacttc tgaccaccgc aatcctgtct tccgcaatcg cgctcagcag tatggctgcc 60
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 ggtaaaaaag tcaaaagtaac ctacggcttc aacaaacagg gtctgaccac atacgcttcc 180
 gccgtcatca acggcaaacg cgtgcaaatg cctgtcaatt tggacaaatc cgacaatgtg 240
 gaaacattct acggcaaaaga aggcggttat gttttgggta ccggcgctgat ggatggcaaa 300
 tctaacgcga aacagcccat tatgattacc gcacctgaca accaaatcgt ctccaagac 360
 tgttccccac gttaa 375

<210> 1783
 <211> 124
 <212> PRT
 <213> *Neisseria meningitidis*

<400> 1783
 Met Lys Leu Leu Thr Thr Ala Ile Leu Ser Ser Ala Ile Ala Leu Ser
 5 10 15
 Ser Met Ala Ala Ala Ala Gly Thr Asp Asn Pro Thr Val Ala Lys Lys
 20 25 30
 Thr Val Ser Tyr Val Cys Gln Gln Gly Lys Lys Val Lys Val Thr Tyr
 35 40 45
 Gly Phe Asn Lys Gln Gly Leu Thr Thr Tyr Ala Ser Ala Val Ile Asn
 50 55 60
 Gly Lys Arg Val Gln Met Pro Val Asn Leu Asp Lys Ser Asp Asn Val
 65 70 75 80

Glu Thr Phe Tyr Gly Lys Glu Gly Gly Tyr Val Leu Gly Thr Gly Val
85 90 95

Met Asp Gly Lys Ser Tyr Arg Lys Gln Pro Ile Met Ile Thr Ala Pro
100 105 110

Asp Asn Gln Ile Val Phe Lys Asp Cys Ser Pro Arg
115 120

<210> 1784

<211> 375

<212> DNA

<213> *Neisseria meningitidis*

<400> 1784

atgaaacttc tgaccaccgc aatcctgtct tccgcaatcg cgctcagcag tatggctgct 60
gctgcccggc cgaacaaccc caccgttgcc aaaaaaacgg tcagctacgt ctgccagcaa 120
ggtaaaaaag tcaaaagtaac ctacggcttt aacaaacagg gcctgaccac atacgcttcc 180
gccgtcatca acggcaaacg tgtgcaaatg cctgtcaatt tggacaatc cgacaatgtg 240
gaaacattct acggcaaaaga aggcggttat gttttgggta ccggcggtgag ggaaggcaaa 300
tcctatcgca aacagcctat tatgattacc gcacctgaca accaaatcgt ctcaaaagac 360
tgttccccac gttaa 375

<210> 1785

<211> 124

<212> PRT

<213> *Neisseria meningitidis*

<400> 1785

Met Lys Leu Leu Thr Thr Ala Ile Leu Ser Ser Ala Ile Ala Leu Ser
5 10 15

Ser Met Ala Ala Ala Ala Gly Thr Asn Asn Pro Thr Val Ala Lys Lys
20 25 30

Thr Val Ser Tyr Val Cys Gln Gln Gly Lys Lys Val Lys Val Thr Tyr
35 40 45

Gly Phe Asn Lys Gln Gly Leu Thr Thr Tyr Ala Ser Ala Val Ile Asn
50 55 60

Gly Lys Arg Val Gln Met Pro Val Asn Leu Asp Lys Ser Asp Asn Val
65 70 75 80

Glu Thr Phe Tyr Gly Lys Glu Gly Gly Tyr Val Leu Gly Thr Gly Val
85 90 95

Met Asp Gly Lys Ser Tyr Arg Lys Gln Pro Ile Met Ile Thr Ala Pro
100 105 110

Asp Asn Gln Ile Val Phe Lys Asp Cys Ser Pro Arg
115 120

<210> 1786

<211> 519
 <212> DNA
 <213> *Neisseria meningitidis*

<220>
 <221> misc_feature
 <222> (1)...(519)
 <223> n = A,T,C or G

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 aagctggaat ccaactcgac cgtatggcaa aagcaggccg gaagcggcag caccgttgaa 180
 acgctgaagc taccgagcgt tgaaggggcg gcactgccta agctgaccgc tcccggcgcc 240
 tatatcgccg acatccccc aaaggcaacct aaaaccgaaa tcgaaaagct ggccaaacag 300
 cccgaatatg cctatctgaa acagcttcag acggtcaagg acgtgaactg gaaccaagta 360
 cagctcgctt acgacaaatg ggactataaa cagggaaggc taaccggagc cggagccgca 420
 attanccgac tggccggttac cgtgggtcacc tcaggcgccg gaaccggagc cgtattggga 480
 ttaanacgng tggccgcccgc cgcaaccgat gcagcattt 519

<210> 1787
 <211> 173
 <212> PRT
 <213> *Neisseria meningitidis*

<220>
 <221> misc_feature
 <222> (1)...(173)
 <223> Xaa is any amino acid

<400> 1787
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 5 10 15
 Val Gly Glu Lys Ala Arg Ala Asp Ala Lys Ile Ile Leu Lys Gly Ile
 20 25 30
 Val Asn Arg Ile Gln Thr Glu Glu Lys Leu Glu Ser Asn Ser Thr Val
 35 40 45
 Trp Gln Lys Gln Ala Gly Ser Gly Ser Thr Val Glu Thr Leu Lys Leu
 50 55 60
 Pro Ser Phe Glu Gly Pro Ala Leu Pro Lys Leu Thr Ala Pro Gly Gly
 65 70 75 80
 Tyr Ile Ala Asp Ile Pro Lys Gly Asn Leu Lys Thr Glu Ile Glu Lys
 85 90 95
 Leu Ala Lys Gln Pro Glu Tyr Ala Tyr Leu Lys Gln Leu Gln Thr Val
 100 105 110
 Lys Asp Val Asn Trp Asn Gln Val Gln Leu Ala Tyr Asp Lys Trp Asp
 115 120 125
 Tyr Lys Gln Glu Gly Leu Thr Gly Ala Gly Ala Ala Ile Xaa Ala Leu

130

135

140

Ala Val Thr Val Val Thr Ser Gly Ala Gly Thr Gly Ala Val Leu Gly
145 150 155 160

Leu Xaa Arg Val Ala Ala Ala Ala Thr Asp Ala Ala Phe
165 170

<210> 1788

<211> 1923

<212> DNA

<213> *Neisseria meningitidis*

<400> 1788

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aaactgcccg tacgcgttat cgcccaaaaca gccaaaaccc gtcccggtcg ggataccgta 180
ctcgaaggca ccgaattcaa aaccacccctt tccggagccg acatacaggc aggggtgggt 240
gaaaaagccc gagccgatgc gaaaattatc ctaaaaggca tcgttaaccg catccaaacc 300
gaagaaaagc tggaaatcaa ctcgaccgta tggcaaaaagc aggcgggaag cggcgcacg 360
gttgaaacgc tgaagctacc gagctttgaa gggccggcac tgcctaagct gaccgtccc 420
ggcggtctata tcgcccacat ccccaaaagc aacctcaaaa ccgaaatcga aaagctggcc 480
aaacagcccg aatatgccta tctgaaacag ctccagacgg tcaaggacgt gaactgggaa 540
caagtacacg tcgcttacga caaatgggac tataaacagg aaggcctaac cggagccgga 600
gccgcaatta tcgcaactggc cggtaccgtg gtccacctcag gcgcaggaaac cggagccgta 660
ttgggattaa acggtgcggc cgccgcgcga accgatgcag catttgccctc ttggccacg 720
caggcttccg tatcgttcat caacaacaaa ggcaatatcg gtaacacctt gaaagagctg 780
ggcagaagca gcacggtgaa aaatctgatg gttgccctcg ctaccgcagg cgtagccgac 840
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gcggcggtcg gtgaaatcct tggcgaaacc ctactggacg gcagagaccc tggcagctcg 1200
aatgtgaagg acagggcmaa aatcattgct aagggcgaagc tggcagcagg ggcggttgcg 1260
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gtaaaatcaa caaaaatcaaa tataagtggg gtatctgtcg gttgggtttt aaatgtttcc 1620
cctaagtatt atttaaaaga agcatctatg aatgatttca gaaatgttca tcaaaaataa 1680
cgctatgcag aaatgatttc ccagacattg ttgagtgaga gtgtgtgtgg tagtctttgt 1740
ctgacaagag cctgcttttcc ggtaagttca acaatatcta atctcaaatc tcccttttaa 1800
gattcaaaaa ttattgggga aatcggtttg ggaagtgggt ttgctgcagg agtagaaaaa 1860
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tag 1923

<210> 1789

<211> 640

<212> PRT

<213> *Neisseria meningitidis*

<400> 1789

Met Gln Leu Leu Ala Ala Glu Gly Ile His Gln His Gln Leu Asn Val

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20					25					30					
Ser	Lys	Asn	Glu	Leu	Asn	Glu	Thr	Lys	Leu	Pro	Val	Arg	Val	Ile	Ala
35					40					45					
Gln	Thr	Ala	Lys	Thr	Arg	Ser	Gly	Trp	Asp	Thr	Val	Leu	Glu	Gly	Thr
50					55					60					
Glu	Phe	Lys	Thr	Thr	Leu	Ser	Gly	Ala	Asp	Ile	Gln	Ala	Gly	Val	Gly
65					70					75					
Glu	Lys	Ala	Arg	Ala	Asp	Ala	Lys	Ile	Ile	Leu	Lys	Gly	Ile	Val	Asn
85					90					95					
Arg	Ile	Gln	Thr	Glu	Glu	Lys	Leu	Glu	Ser	Asn	Ser	Thr	Val	Trp	Gln
100					105					110					
Lys	Gln	Ala	Gly	Ser	Gly	Ser	Thr	Val	Glu	Thr	Leu	Lys	Leu	Pro	Ser
115					120					125					
Phe	Glu	Gly	Pro	Ala	Leu	Pro	Lys	Leu	Thr	Ala	Pro	Gly	Gly	Tyr	Ile
130					135					140					
Ala	Asp	Ile	Pro	Lys	Gly	Asn	Leu	Lys	Thr	Glu	Ile	Glu	Lys	Leu	Ala
145					150					155					
Lys	Gln	Pro	Glu	Tyr	Ala	Tyr	Leu	Lys	Gln	Leu	Gln	Thr	Val	Lys	Asp
165					170					175					
Val	Asn	Trp	Asn	Gln	Val	Gln	Leu	Ala	Tyr	Asp	Lys	Trp	Asp	Tyr	Lys
180					185					190					
Gln	Glu	Gly	Leu	Thr	Gly	Ala	Gly	Ala	Ala	Ile	Ile	Ala	Leu	Ala	Val
195					200					205					
Thr	Val	Val	Thr	Ser	Gly	Ala	Gly	Thr	Gly	Ala	Val	Leu	Gly	Leu	Asn
210					215					220					
Gly	Ala	Ala	Ala	Ala	Ala	Thr	Asp	Ala	Ala	Phe	Ala	Ser	Leu	Ala	Ser
225					230					235					
Gln	Ala	Ser	Val	Ser	Phe	Ile	Asn	Asn	Lys	Gly	Asn	Ile	Gly	Asn	Thr
245					250					255					
Leu	Lys	Glu	Leu	Gly	Arg	Ser	Ser	Thr	Val	Lys	Asn	Leu	Met	Val	Ala
260					265					270					
Val	Ala	Thr	Ala	Gly	Val	Ala	Asp	Lys	Ile	Gly	Ala	Ser	Ala	Leu	Asn
275					280					285					
Asn	Val	Ser	Asp	Lys	Gln	Trp	Ile	Asn	Asn	Leu	Thr	Val	Asn	Leu	Ala
290					295					300					
Asn	Ala	Gly	Ser	Ala	Ala	Leu	Ile	Asn	Thr	Ala	Val	Asn	Gly	Gly	Ser

305		310		315		320
Leu Lys Asp Asn	Leu Glu Ala Asn Ile	Leu Ala Ala Leu Val Asn Thr				
	325		330			335
Ala His Gly Glu	Ala Ala Ser Lys Ile	Lys Gln Leu Asp Gln His Tyr				
	340		345			350
Ile Ala His Lys	Ile Ala His Ala Ile	Ala Gly Cys Ala Ala Ala Ala				
	355		360			365
Ala Asn Lys Gly	Lys Cys Gln Asp Gly	Ala Ile Gly Ala Ala Val Gly				
	370		375			380
Glu Ile Leu Gly	Glu Thr Leu Leu Asp Gly	Arg Asp Pro Gly Ser Leu				
	385		390			400
Asn Val Lys Asp	Arg Ala Lys Ile Ile	Ala Lys Ala Lys Leu Ala Ala				
	405		410			415
Gly Ala Val Ala	Ala Leu Ser Lys Gly	Asp Val Ser Thr Ala Ala Asn				
	420		425			430
Ala Ala Ala Val	Ala Val Glu Asn Asn Ser	Leu Asn Asp Ile Gln Asp				
	435		440			445
Arg Leu Leu Ser	Gly Asn Tyr Ala Leu Cys Met	Ser Ala Gly Gly Ala				
	450		455			460
Glu Ser Phe Cys	Glu Ser Tyr Arg Pro	Leu Gly Leu Pro His Phe Val				
	465		470			475
Ser Val Ser Gly	Glu Met Lys Leu Pro	Asn Lys Phe Gly Asn Arg Met				
	485		490			495
Val Asn Gly Lys	Leu Ile Ile Asn Thr	Arg Asn Gly Asn Val Tyr Phe				
	500		505			510
Ser Val Gly Lys	Ile Trp Ser Thr Val	Lys Ser Thr Lys Ser Asn Ile				
	515		520			525
Ser Gly Val Ser	Val Gly Trp Val Leu	Asn Val Ser Pro Asn Asp Tyr				
	530		535			540
Leu Lys Glu Ala	Ser Met Asn Asp Phe	Arg Asn Ser Asn Gln Asn Lys				
	545		550			555
Ala Tyr Ala Glu	Met Ile Ser Gln Thr	Leu Val Gly Glu Ser Val Gly				
	565		570			575
Gly Ser Leu Cys	Leu Thr Arg Ala Cys	Phe Ser Val Ser Ser Thr Ile				
	580		585			590
Ser Lys Ser Lys	Ser Pro Phe Lys Asp	Ser Lys Ile Ile Gly Glu Ile				
	595		600			605
Gly Leu Gly Ser	Gly Val Ala Ala Gly	Val Glu Lys Thr Ile Tyr Ile				

Gly Asn Ile Lys Asp Ile Asp Lys Phe Ile Ser Ala Asn Ile Lys Lys
 625 630 635 640

<210> 1790
 <211> 2291
 <212> DNA
 <213> *Neisseria meningitidis*

<220>
 <221> misc_feature
 <222> (1)...(1790)
 <223> n = A,T,C or G

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<400> 1790
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aaattgcctg tccgcgtcgt cgcctcaant gcagccaccc gttoaggctg ggataccgtg 180
ctcgaagtag ccgaattcaa aaccacgctg gccgggtgcc acattcagcg aggtgtangc 240
gaaaaagccc gtgtcgatgc gaaaattatc ctcaaaaggca ttgtgaaccg tatccagctg 300
gaagaaaaat tagaaaaaaa ctcaaacctga tggcagaatac aggcggcgagc cggcagcact 360
atcgaaacgc taaaactgcc cagcttcgaa agccctactc cgcctcaatt gtccgcaccc 420
ggcggntata tctgcacatg tccgaaaggc aatctgaaaa ccgaaatcga aaagctgtcc 480
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caggtgcagc ttgcttacga cagatgggac tacaaacagg agggcttaac cgaagcaggt 600
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acaatcagaa acaaacattt gatcgatagt agaagccttc attcatcttg ggaagcaggt 1560
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ttggctttac agtcttatca tttgaatact gctgtcaaat cttggcttca atcgggcaat 1680
acaaagcctt tatccgaagt gatgtccgac caaggttata cacttatctt aggagttaat 1740
cctagattca ttccaatacc aagagggttt gtaaaacaaa atacacctat tactaatgtc 1800
aaataccggg aaggcatcag ttctgataca aacctanaaa gacatctggc aaatgctgat 1860
gtttttatg aagaacagcg cattaaagga gcccataacc gcaccaatnt tatggcagaa 1920
ctaaattcac gaggaggang ngtaaaatct gaaaccanaa ctgatattga aggcattacc 1980
cgaattaaat atgagattcc tacaactagac aggaacagga aacctgtagg ttgatttaa 2040
gaaatttcaa gtataaaaaa tgttttataa cctaaaaaant tttngatgag taaaataact 2100
caaatggctc aanatgctgn ttcaacagga tatttcaaaag cctctaaaaa tgcctcaaat 2160
gaaagaacta aatcaatata ggaaagaaaa aatgtcatc acctctcagc acctcttgac 2220
ggaatcaaat ttagannnta tntngatgta aatacaggaa gaattacaaa cattcaccca 2280
gaataattta a
2291

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<210> 1791
<211> 761
<212> PRT
<213> *Neisseria meningitidis*

<220>
<221> misc_feature
<222> (1)...(761)
<223> Xaa is any amino acid

<400> 1791
Xaa Gln Leu Leu Ala Glu Glu Gly Ile His Lys His Glu Leu Asp Val
5 10 15
Gln Lys Ser Arg Arg Phe Ile Gly Ile Lys Val Gly Xaa Ser Asn Tyr
20 25 30
Ser Lys Asn Glu Leu Asn Glu Thr Lys Leu Pro Val Arg Val Val Ala
35 40 45
Gln Xaa Ala Ala Thr Arg Ser Gly Trp Asp Thr Val Leu Glu Gly Thr
50 55 60
Glu Phe Lys Thr Thr Leu Ala Gly Ala Asp Ile Gln Ala Gly Val Xaa
65 70 75 80
Glu Lys Ala Arg Val Asp Ala Lys Ile Ile Leu Lys Gly Ile Val Asn
85 90 95
Arg Ile Gln Ser Glu Glu Lys Leu Glu Thr Asn Ser Thr Val Trp Gln
100 105 110
Lys Gln Ala Gly Arg Gly Ser Thr Ile Glu Thr Leu Lys Leu Pro Ser
115 120 125
Phe Glu Ser Pro Thr Pro Pro Lys Leu Ser Ala Pro Gly Gly Tyr Ile
130 135 140
Val Asp Ile Pro Lys Gly Asn Leu Lys Thr Glu Ile Glu Lys Leu Ser
145 150 155 160
Lys Gln Pro Glu Tyr Ala Tyr Leu Lys Gln Leu Gln Val Ala Lys Asn
165 170 175
Ile Asn Trp Asn Gln Val Gln Leu Ala Tyr Asp Arg Trp Asp Tyr Lys
180 185 190
Gln Glu Gly Leu Thr Glu Ala Gly Ala Ala Ile Ile Ala Leu Ala Val
195 200 205
Thr Val Val Thr Ser Gly Ala Gly Thr Gly Ala Val Leu Gly Leu Asn
210 215 220
Gly Ala Xaa Ala Ala Ala Thr Asp Ala Ala Phe Ala Ser Leu Ala Ser
225 230 235 240

Gln Ala Ser Val Ser Phe Ile Asn Asn Lys Gly Asp Val Gly Lys Thr
 245 250 255
 Leu Lys Glu Leu Gly Arg Ser Ser Thr Val Lys Asn Leu Val Val Ala
 260 265 270
 Ala Ala Thr Ala Gly Val Ala Asp Lys Ile Gly Ala Ser Ala Leu Xaa
 275 280 285
 Asn Val Ser Asp Lys Gln Trp Ile Asn Asn Leu Thr Val Asn Leu Ala
 290 295 300
 Asn Ala Gly Ser Ala Ala Leu Ile Asn Thr Ala Val Asn Gly Gly Ser
 305 310 315 320
 Leu Lys Asp Xaa Leu Glu Ala Asn Ile Leu Ala Ala Leu Val Asn Thr
 325 330 335
 Ala His Gly Glu Ala Ala Ser Lys Ile Lys Gln Leu Asp Gln His Tyr
 340 345 350
 Ile Val His Lys Ile Ala His Ala Ile Ala Gly Cys Ala Ala Ala Ala
 355 360 365
 Ala Asn Lys Gly Lys Cys Gln Asp Gly Ala Ile Gly Ala Ala Val Gly
 370 375 380
 Glu Ile Val Gly Glu Ala Leu Thr Asn Gly Lys Asn Pro Asp Thr Leu
 385 390 395 400
 Thr Ala Lys Glu Arg Glu Gln Ile Leu Ala Tyr Ser Lys Leu Val Ala
 405 410 415
 Gly Thr Val Ser Gly Val Val Gly Gly Asp Val Asn Ala Ala Ala Asn
 420 425 430
 Ala Ala Glu Val Ala Val Lys Asn Asn Gln Leu Ser Asp Xaa Glu Gly
 435 440 445
 Arg Glu Phe Asp Asn Glu Met Thr Ala Cys Ala Lys Gln Asn Xaa Pro
 450 455 460
 Gln Leu Cys Arg Lys Asn Thr Val Lys Lys Tyr Gln Asn Val Ala Asp
 465 470 475 480
 Lys Arg Leu Ala Ala Ser Ile Ala Ile Cys Thr Asp Ile Ser Arg Ser
 485 490 495
 Thr Glu Cys Arg Thr Ile Arg Lys Gln His Leu Ile Asp Ser Arg Ser
 500 505 510
 Leu His Ser Ser Trp Glu Ala Gly Leu Ile Gly Lys Asp Asp Glu Trp
 515 520 525
 Tyr Lys Leu Phe Ser Lys Ser Tyr Thr Gln Ala Asp Leu Ala Leu Gln
 530 535 540

Ser Tyr His Leu Asn Thr Ala Ala Lys Ser Trp Leu Gln Ser Gly Asn
 545 550 555 560
 Thr Lys Pro Leu Ser Glu Trp Met Ser Asp Gln Gly Tyr Thr Leu Ile
 565 570 575
 Ser Gly Val Asn Pro Arg Phe Ile Pro Ile Pro Arg Gly Phe Val Lys
 580 585 590
 Gln Asn Thr Pro Ile Thr Asn Val Lys Tyr Pro Glu Gly Ile Ser Phe
 595 600 605
 Asp Thr Asn Leu Xaa Arg His Leu Ala Asn Ala Asp Gly Phe Ser Gln
 610 615 620
 Glu Gln Gly Ile Lys Gly Ala His Asn Arg Thr Asn Xaa Met Ala Glu
 625 630 635 640
 Leu Asn Ser Arg Gly Gly Xaa Val Lys Ser Glu Thr Xaa Thr Asp Ile
 645 650 655
 Glu Gly Ile Thr Arg Ile Lys Tyr Glu Ile Pro Thr Leu Asp Arg Thr
 660 665 670
 Gly Lys Pro Asp Gly Gly Phe Lys Glu Ile Ser Ser Ile Lys Thr Val
 675 680 685
 Tyr Asn Pro Lys Xaa Phe Xaa Asp Asp Lys Ile Leu Gln Met Ala Gln
 690 695 700
 Xaa Ala Xaa Ser Gln Gly Tyr Ser Lys Ala Ser Lys Ile Ala Gln Asn
 705 710 715 720
 Glu Arg Thr Lys Ser Ile Ser Glu Arg Lys Asn Val Ile Gln Phe Ser
 725 730 735
 Glu Thr Phe Asp Gly Ile Lys Phe Arg Xaa Tyr Xaa Asp Val Asn Thr
 740 745 750
 Gly Arg Ile Thr Asn Ile His Pro Glu
 755 760

<210> 1792

<211> 336

<212> DNA

<213> *Neisseria meningitidis*

<400> 1792

cggatcggtg taggttttgc gattttctgc gccgtagtca ccgtagtccc aagtataacc 60
 caagcgtttg tcttcgcctt tcatttcogat aagggatatg acgcttttgt cggtatagcc 120
 gtcttgggaa cctttgtcca cccaacgcac atctgcctgc ggattctcat tgcgccttct 180
 tggctgctga tttttctgcc ttccgctttt tcaacttcgc gcttgagggc ttccgcatat 240
 ttgtcggcca acgccatttc ttccgatgc agctgcctat tgttccaatc tacattcgca 300
 cccaccacag caccaccact accaccagtt gcatag 336

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<210> 1793
<211> 111
<212> PRT
<213> Neisseria meningitidis

<400> 1793
Arg Ile Val Val Gly Leu Arg Ile Ser Cys Ala Val Val Thr Val Val
      5              10              15

Pro Ser Ile Thr Gln Gly Phe Val Phe Ala Phe His Ser Asp Lys Gly
      20              25              30

Tyr Asp Ala Leu Val Gly Ile Ala Val Leu Gly Thr Phe Val His Pro
      35              40              45

Thr His Ile Cys Leu Arg Ile Leu Ile Ala Ala Ser Trp Leu Leu Ile
      50              55              60

Phe Leu Pro Ser Arg Phe Ser Thr Ser Arg Leu Arg Ala Ser Ala Tyr
      65              70              75              80

Leu Ser Ala Asn Ala Ile Ser Phe Gly Cys Ser Cys Leu Leu Phe Gln
      85              90              95

Ser Thr Phe Ala Pro Thr Thr Ala Pro Pro Leu Pro Pro Val Ala
      100              105              110

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<210> 1794
<211> 1716
<212> DNA
<213> Neisseria meningitidis

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<220>
<221> misc_feature
<222> (1)...(1716)
<223> n = A,T,C or G

```

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<400> 1794
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gtattggtgg tgcctgggtg gttgcagctg ttgcgctga ttacgcctct gtttttccaa 120
gtggtgatgg acaaggtgct ggtacatcgg ggattctcta cttgggatgt ggtgtcggtg 180
gctttgttgg tggtgtcgct gtttgagatt gtgttggcgc gtttcggcag gtatctgttt 240
gcacatacga cttcacgtat tgatgtggaa ttggcgcgcg gttgttccg gcactctgctt 300
tccctgcctt tatcctattt cgagcacaga cgagtgggtg atacggtggc tcgggtgcgg 360
gaattggagc agattcgcaa ttctctgacc ggtcaggcgc tgacttcggt gttggatttg 420
gcgttttcgt ttatctttct ggcgggtgat tggattaca gtcacctct gacttgggtg 480
gtattggctt cggtgnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn 540
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn 600
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn 660
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn 720
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn 780
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn 840
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn 900
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn 960
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn 1020

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nnnnnnnnnnnn nnnnnnnnnnnn nnnnnnnnnnnn nnnnnnnnnnnn nnnnnnnnnnnn nnnnnnnnnnnn 1080
nnnnnnnnnnnn nnnnnnnnnnnn nnnnnnnnnnnn nnnnnnnnnnnn nnnnnnnnnnnn nnnnnnnnnnnn 1140
nnnnnnnnnnnn nnnnnnnnnnnn nnnnnnnnnnnn nnnnnnnnnnnn nnnnnnnnnnnn nnnnnnnnnnnn 1200
nnnnnnnnnnnn nnnnnnnnnnnn nnnnnnnnnnnn nnnnnnnnnnnn nnnnnnnnnnnn nnnnnnnnnnnn 1260
nnnnnnnnnnnn nnnnnnnnnnnn nnnnnnnnnnnn nnnnnnnnnnnn nnnnnnnnnnnn nnnnnnnnnnnn 1320
nnnnnnnnnnnn nnnnnnnnnnnn nnnnnnnnnnnn nnnnnnnnnnnn nnnnnnnnnnnn nnnnnnnnnnnn 1380
nnnnnnnnnnnn nnnnnnnnnnnn nnnnnnnnnnnn nnnnnnnnnnnn nnnnnnnnnnnn nnnnnnnnnnnn 1440
nnnnnnnnnnnn nnnnnnnnnnnn nnnnnnnnnnnn nnnnnnnnnnnn nnnnnnnnnnnn nnnnnnnnnnnn 1500
nnnnnnnnnnnn nnnnnnnnnnnn nnnnnnnnnnnn nnnnnnnnnnnn nnnnnnnnnnnn nnnnnnnnnnnn 1560
gtgctgatta tcgcccaccg tctgtccact gttaaaaacgg cacaccggat cattgccatg 1620
gataaaggca ggattgtgga agcgggaaca cagcaggaaat tgctggcgaa cgnaaacgga 1680
tattaccgct atctgtatga ttacagaaac gggtag 1716

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<210> 1795
<211> 571
<212> PRT
<213> Neisseria meningitidis

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<220>
<221> misc_feature
<222> (1)...(571)
<223> Xaa is any Amino Acid

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<400> 1795
Lys Phe Asp Phe Thr Trp Phe Ile Pro Ala Val Ile Lys Tyr Arg Arg
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Leu Phe Phe Glu Val Leu Val Val Ser Val Val Leu Gln Leu Phe Ala
      20                      25                      30

Leu Ile Thr Pro Leu Phe Phe Gln Val Val Met Asp Lys Val Leu Val
      35                      40                      45

His Arg Gly Phe Ser Thr Leu Asp Val Val Ser Val Ala Leu Leu Val
      50                      55                      60

Val Ser Leu Phe Glu Ile Val Leu Gly Gly Leu Arg Thr Tyr Leu Phe
      65                      70                      75                      80

Ala His Thr Thr Ser Arg Ile Asp Val Glu Leu Gly Ala Arg Leu Phe
      85                      90                      95

Arg His Leu Leu Ser Leu Pro Leu Ser Tyr Phe Glu His Arg Arg Val
      100                     105                     110

Gly Asp Thr Val Ala Arg Val Arg Glu Leu Glu Gln Ile Arg Asn Phe
      115                     120                     125

Leu Thr Gly Gln Ala Leu Thr Ser Val Leu Asp Leu Ala Phe Ser Phe
      130                     135                     140

Ile Phe Leu Ala Val Met Trp Tyr Tyr Ser Ser Thr Leu Thr Trp Val
      145                     150                     155                     160

Val Leu Ala Ser Leu Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa

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165				170				175							
Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	
		180					185					190			
Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa
		195				200						205			
Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa
		210				215					220				
Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa
		225				230				235					240
Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa
			245					250						255	
Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa
		260					265						270		
Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa
		275				280						285			
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		290				295				300					
Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa
		305				310				315					320
Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa
			325					330						335	
Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa
		340					345					350			
Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa
		355				360					365				
Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa
		370				375				380					
Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa
		385				390				395					400
Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa
			405					410						415	
Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa
		420					425					430			
Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa
		435				440				445					
Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa
		450				455				460					
Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa

gtggtgggcg aacaagggcg cggcttgctg ggcggacagc ggcagcgtat tgcgattgcc 1860
 cgcgcgtaaa tcaccaatcc ggcgattctg atttttgatg aagccaccag cgcgctggat 1920
 tatgaaagtg aacgagcgat tatgcagaac atgcaggcca ttgcgccaa ccggacgggtg 1980
 ctgattatcg cccaccgtct gtccactgtt aaaacggcac accggatcat tgcgatggat 2040
 aaaggcagga ttgtggaagc gggaacacag caggaattgc tggcgaagcc gaacggatat 2100
 taccgctatc tgtatgatt acagaacggg tag 2133

<210> 1797

<211> 710

<212> PRT

<213> *Neisseria meningitidis*

<400> 1797

Met Ser Ile Val Ser Ala Pro Leu Pro Ala Leu Ser Ala Leu Ile Ile
 5 10 15

Leu Ala His Tyr His Gly Ile Ala Ala Asn Pro Ala Asp Ile Gln His
 20 25 30

Glu Phe Cys Thr Ser Ala Gln Ser Asp Leu Asn Glu Thr Gln Trp Leu
 35 40 45

Leu Ala Ala Lys Ser Leu Gly Leu Lys Ala Lys Val Val Arg Gln Pro
 50 55 60

Ile Lys Arg Leu Ala Met Ala Thr Leu Pro Ala Leu Val Trp Cys Asp
 65 70 75 80

Asp Gly Asn His Phe Ile Leu Ala Lys Thr Asp Gly Glu Gly Glu His
 85 90 95

Ala Gln Phe Leu Ile Gln Asp Leu Val Thr Asn Lys Ser Ala Val Leu
 100 105 110

Ser Phe Ala Glu Phe Ser Asn Arg Tyr Ser Gly Lys Leu Ile Leu Val
 115 120 125

Ala Ser Arg Ala Ser Val Leu Gly Ser Leu Ala Lys Phe Asp Phe Thr
 130 135 140

Trp Phe Ile Pro Ala Val Ile Lys Tyr Arg Arg Leu Phe Phe Glu Val
 145 150 155 160

Leu Val Val Ser Val Val Leu Gln Leu Phe Ala Leu Ile Thr Pro Leu
 165 170 175

Phe Phe Gln Val Val Met Asp Lys Val Leu Val His Arg Gly Phe Ser
 180 185 190

Thr Leu Asp Val Val Ser Val Ala Leu Leu Val Val Ser Leu Phe Glu
 195 200 205

Ile Val Leu Gly Gly Leu Arg Thr Tyr Leu Phe Ala His Thr Thr Ser
 210 215 220

Arg Ile Asp Val Glu Leu Gly Ala Arg Leu Phe Arg His Leu Leu Ser

225		230		235		240
Leu Pro Leu Ser Tyr	245	Phe Glu His Arg	250	Arg Val Gly Asp	Thr Val Ala	255
Arg Val Arg Glu Leu	260	Glu Gln Ile Arg	265	Asn Phe Leu Thr	Gly Gln Ala	270
Leu Thr Ser Val Leu	275	Asp Leu Ala Phe	280	Ser Phe Ile Phe	Leu Ala Val	285
Met Trp Tyr Tyr Ser	290	Ser Thr Leu Thr	295	Trp Val Val Leu	Ala Ser Leu	300
Pro Ala Tyr Ala Phe	305	Trp Ser Ala Phe	310	Ile Ser Pro Ile	Leu Arg Thr	315
Arg Leu Asn Asp Lys	325	Phe Ala Arg Asn	330	Ala Asp Asn Gln	Ser Phe Leu	335
Val Glu Ser Ile Thr	340	Ala Val Gly Thr	345	Val Lys Ala Met	Ala Val Glu	350
Pro Gln Met Thr Gln	355	Arg Trp Asp Asn	360	Gln Leu Ala Ala	Tyr Val Ala	365
Ser Gly Phe Arg Val	370	Thr Lys Leu Ala	375	Val Val Gly Gln	Gln Gly Val	380
Gln Leu Ile Gln Lys	385	Leu Val Thr Val	390	Ala Thr Leu Trp	Ile Gly Ala	395
Arg Leu Val Ile Glu	405	Ser Lys Leu Thr	410	Val Gly Gln Leu	Ile Ala Phe	415
Asn Met Leu Ser Gly	420	Gln Val Ala Ala	425	Pro Val Ile Arg	Leu Ala Gln	430
Leu Trp Gln Asp Phe	435	Gln Gln Val Gly	440	Ile Ser Val Ala	Arg Leu Gly	445
Asp Ile Leu Asn Ala	450	Pro Thr Glu Asn	455	Ala Ser Ser His	Leu Ala Leu	460
Pro Asp Ile Arg Gly	465	Glu Ile Thr Phe	470	Glu His Val Asp	Phe Arg Tyr	475
Lys Ala Asp Gly Arg	485	Leu Ile Leu Gln	490	Asp Leu Asn Leu	Arg Ile Arg	495
Ala Gly Glu Val Leu	500	Gly Ile Val Gly	505	Arg Ser Gly Ser	Gly Lys Ser	510
Thr Leu Thr Lys Leu	515	Val Gln Arg Leu	520	Tyr Val Pro Glu	Gln Gly Arg	525
Val Leu Val Asp Gly		Asn Asp Leu Ala		Leu Ala Ala Pro	Ala Trp Leu	

530 535 540
 Arg Arg Gln Val Gly Val Val Leu Gln Glu Asn Val Leu Leu Asn Arg
 545 550 555 560
 Ser Ile Arg Asp Asn Ile Ala Leu Thr Asp Thr Gly Met Pro Leu Glu
 565 570 575
 Arg Ile Ile Glu Ala Ala Lys Leu Ala Gly Ala His Glu Phe Ile Met
 580 585 590
 Glu Leu Pro Glu Gly Tyr Gly Thr Val Val Gly Glu Gln Gly Ala Gly
 595 600 605
 Leu Ser Gly Gly Gln Arg Gln Arg Ile Ala Ile Ala Arg Ala Leu Ile
 610 615 620
 Thr Asn Pro Arg Ile Leu Ile Phe Asp Glu Ala Thr Ser Ala Leu Asp
 625 630 635 640
 Tyr Glu Ser Glu Arg Ala Ile Met Gln Asn Met Gln Ala Ile Cys Ala
 645 650 655
 Asn Arg Thr Val Leu Ile Ile Ala His Arg Leu Ser Thr Val Lys Thr
 660 665 670
 Ala His Arg Ile Ile Ala Met Asp Lys Gly Arg Ile Val Glu Ala Gly
 675 680 685
 Thr Gln Gln Glu Leu Leu Ala Lys Pro Asn Gly Tyr Tyr Arg Tyr Leu
 690 695 700
 Tyr Asp Leu Gln Asn Gly
 705 710

<210> 1798

<211> 2133

<212> DNA

<213> *Neisseria meningitidis*

<400> 1798

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 gatttaaatg aaacgcaatg gctgttagcc gccaaatctt tgggattgaa ggcaaggtta 180
 gtcgccagc ctattaaacg tttggctatg gcgactttac ccgcatttgt atggtgtgat 240
 gacggcaaac attttatatt ggctaaaaca gacgggtggg gtgagcatgc ccaatatcta 300
 atacaggatt taactacgaa taagtctgcg gtattgtctt ttgccgaatt ttctaacaga 360
 tatcgggcca aactgatatt ggttgcttcc cgcgcttcgg tattgggcag ttggcaag 420
 tttagactta cctggtttat tccggcggtta atcaaatacc gccggttgtt tttagaagta 480
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 catacagact cagctattga tgtggaattg ggcgcgctt tgttcgcga tctgctttcc 720
 ctgcctttat cctatttcga gcacagacga gtgggtgata cggtgctcg ggtgcgggaa 780
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aatcagtttg  cggcttatgt  ggcttcggga  ttccgggtaa  cgaagtggc  ggtggtcggc  1140
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ctggggattg  tgggacgttc  ggggtcggcg  aaatccacac  tcaccaaat  ggtgcagcgt  1560
ctgtatgtac  cggcgacagg  acgggtgttg  gtggacggca  acgatttggc  ttggcccgct  1620
cctgctttgc  tgcggcgcca  ggtcggcggt  gtcttgacgg  agaattgtct  gctcaaccgc  1680
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gcacgcaaac  tggcggggcg  acacgagttt  attatggagc  tgccgggaag  ctacggcacc  1800
gtggtggggc  aacaaggggc  cggcttctgc  ggcggaacgc  ggacgctat  tgcgattgcc  1860
cgcgcttaa  tcaccaatcc  gcgcattctg  attttgatg  aagccaccag  cgcgctgat  1920
tatgaaagt  aacgagcgat  tatgcagaac  atgcaggcca  ttgcccga  ccggacggtg  1980
ctgattatcg  cccaccgtct  gtccactgtt  aaaacggcac  accggatcat  tgcgatgat  2040
aaaggcagga  ttgtggaagc  gggaaacacg  caggaattgc  tggcgaagcc  gaacggatat  2100
taccgctatc  tgtatgattt  acagaacggg  tag
2133

```

<210> 1799

<211> 710

<212> PRT

<213> *Neisseria meningitidis*

<400> 1799

Met Ser Ile Val Ser Ala Pro Leu Pro Ala Leu Ser Ala Leu Ile Ile
5 10 15

Leu Ala His Tyr His Gly Ile Ala Ala Asn Pro Ala Asp Ile Gln His
20 25 30

Glu Phe Cys Thr Ser Ala Gln Ser Asp Leu Asn Glu Thr Gln Trp Leu
35 40 45

Leu Ala Ala Lys Ser Leu Gly Leu Lys Ala Lys Val Val Arg Gln Pro
50 55 60

Ile Lys Arg Leu Ala Met Ala Thr Leu Pro Ala Leu Val Trp Cys Asp
65 70 75 80

Asp Gly Asn His Phe Ile Leu Ala Lys Thr Asp Gly Gly Gly Glu His
85 90 95

Ala Gln Tyr Leu Ile Gln Asp Leu Thr Thr Asn Lys Ser Ala Val Leu
100 105 110

Ser Phe Ala Glu Phe Ser Asn Arg Tyr Ser Gly Lys Leu Ile Leu Val
115 120 125

Ala Ser Arg Ala Ser Val Leu Gly Ser Leu Ala Lys Phe Asp Phe Thr
130 135 140

Trp Phe Ile Pro Ala Val Ile Lys Tyr Arg Arg Leu Phe Phe Glu Val
145 150 155 160

Leu Val Val Ser Val Val Leu Gln Leu Phe Ala Leu Ile Thr Pro Leu
 165 170 175
 Phe Phe Gln Val Val Met Asp Lys Val Leu Val His Arg Gly Phe Ser
 180 185 190
 Thr Leu Asp Val Val Ser Val Ala Leu Leu Val Val Ser Leu Phe Glu
 195 200 205
 Ile Val Leu Gly Gly Leu Arg Thr Tyr Leu Phe Ala His Thr Thr Ser
 210 215 220
 Arg Ile Asp Val Glu Leu Gly Ala Arg Leu Phe Arg His Leu Leu Ser
 225 230 235 240
 Leu Pro Leu Ser Tyr Phe Glu His Arg Arg Val Gly Asp Thr Val Ala
 245 250 255
 Arg Val Arg Glu Leu Glu Gln Ile Arg Asn Phe Leu Thr Gly Gln Ala
 260 265 270
 Leu Thr Ser Val Leu Asp Leu Ala Phe Ser Phe Ile Phe Leu Ala Val
 275 280 285
 Met Trp Tyr Tyr Ser Ser Thr Leu Thr Trp Val Val Leu Ala Ser Leu
 290 295 300
 Pro Ala Tyr Ala Phe Trp Ser Ala Phe Ile Ser Pro Ile Leu Arg Thr
 305 310 315 320
 Arg Leu Asn Asp Lys Phe Ala Arg Asn Ala Asp Asn Gln Ser Phe Leu
 325 330 335
 Val Glu Ser Ile Thr Ala Val Gly Thr Val Lys Ala Met Ala Val Glu
 340 345 350
 Pro Gln Met Thr Gln Arg Trp Asp Asn Gln Leu Ala Ala Tyr Val Ala
 355 360 365
 Ser Gly Phe Arg Val Thr Lys Leu Ala Val Val Gly Gln Gln Gly Val
 370 375 380
 Gln Leu Ile Gln Lys Leu Val Thr Val Ala Thr Leu Trp Ile Gly Ala
 385 390 395 400
 Arg Leu Val Ile Glu Ser Lys Leu Thr Val Gly Gln Leu Ile Ala Phe
 405 410 415
 Asn Met Leu Ser Gly Gln Val Ala Ala Pro Val Ile Arg Leu Ala Gln
 420 425 430
 Leu Trp Gln Asp Phe Gln Gln Val Gly Ile Ser Val Ala Arg Leu Gly
 435 440 445
 Asp Ile Leu Asn Ala Pro Thr Glu Asn Ala Ser Ser His Leu Ala Leu
 450 455 460

Pro Asp Ile Arg Gly Glu Ile Thr Phe Glu His Val Asp Phe Arg Tyr
 465 470 475 480

Lys Ala Asp Gly Arg Leu Ile Leu Gln Asp Leu Asn Leu Arg Ile Arg
 485 490 495

Ala Gly Glu Val Leu Gly Ile Val Gly Arg Ser Gly Ser Gly Lys Ser
 500 505 510

Thr Leu Thr Lys Leu Val Gln Arg Leu Tyr Val Pro Ala Gln Gly Arg
 515 520 525

Val Leu Val Asp Gly Asn Asp Leu Ala Leu Ala Ala Pro Ala Trp Leu
 530 535 540

Arg Arg Gln Val Gly Val Val Leu Gln Glu Asn Val Leu Leu Asn Arg
 545 550 555 560

Ser Ile Arg Asp Asn Ile Ala Leu Thr Asp Thr Gly Met Pro Leu Glu
 565 570 575

Arg Ile Ile Glu Ala Ala Lys Leu Ala Gly Ala His Glu Phe Ile Met
 580 585 590

Glu Leu Pro Glu Gly Tyr Gly Thr Val Val Gly Glu Gln Gly Ala Gly
 595 600 605

Leu Ser Gly Gly Gln Arg Gln Arg Ile Ala Ile Ala Arg Ala Leu Ile
 610 615 620

Thr Asn Pro Arg Ile Leu Ile Phe Asp Glu Ala Thr Ser Ala Leu Asp
 625 630 635 640

Tyr Glu Ser Glu Arg Ala Ile Met Gln Asn Met Gln Ala Ile Cys Ala
 645 650 655

Asn Arg Thr Val Leu Ile Ile Ala His Arg Leu Ser Thr Val Lys Thr
 660 665 670

Ala His Arg Ile Ile Ala Met Asp Lys Gly Arg Ile Val Glu Ala Gly
 675 680 685

Thr Gln Gln Glu Leu Leu Ala Lys Pro Asn Gly Tyr Tyr Arg Tyr Leu
 690 695 700

Tyr Asp Leu Gln Asn Gly
 705 710

<210> 1800

<211> 186

<212> DNA

<213> *Neisseria meningitidis*

<400> 1800

atgaaatact tgatccgcac cgccttactc gcagtcgcag ccgccggcat ctacgcctgc 60

caaccgcaat ccgaagccgc agtgcaagtc aaggctgaaa acagcctgac cgctatgcgc 120
 tttagccgtcg ccgacaaaaca ggcagagatt gacgggttga acgcccacaa sgacgccgaa 180
 atcaga 186

<210> 1801
 <211> 62
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (1)...(62)
 <223> Xaa is any Amino Acid

<400> 1801
 Met Lys Tyr Leu Ile Arg Thr Ala Leu Leu Ala Val Ala Ala Gly
 5 10 15
 Ile Tyr Ala Cys Gln Pro Gln Ser Glu Ala Ala Val Gln Val Lys Ala
 20 25 30
 Glu Asn Ser Leu Thr Ala Met Arg Leu Ala Val Ala Asp Lys Gln Ala
 35 40 45
 Glu Ile Asp Gly Leu Asn Ala Gln Xaa Asp Ala Glu Ile Arg
 50 55 60

<210> 1802
 <211> 261
 <212> DNA
 <213> Neisseria meningitidis

<400> 1802
 atgaaatact tgateccgcac cgccttactc gcagtcgcag ccgcccgcac ctacgcctgc 60
 caaccgcaat ccgaagccgc agtgcaagtc aaggctgaaa acagcctgac cgctatgcgc 120
 tttagccgtcg ccgacaaaaca ggcagagatt gacgggttga acgcccacaa cgacgccgaa 180
 atcagacaac ccgaagccga agaattgaaa gactaccgat ggatacacgg cgacgccgaa 240
 gtgcccggagc tggaaaaatg a 261

<210> 1803
 <211> 86
 <212> PRT
 <213> Neisseria meningitidis

<400> 1803
 Met Lys Tyr Leu Ile Arg Thr Ala Leu Leu Ala Val Ala Ala Gly
 5 10 15
 Ile Tyr Ala Cys Gln Pro Gln Ser Glu Ala Ala Val Gln Val Lys Ala
 20 25 30
 Glu Asn Ser Leu Thr Ala Met Arg Leu Ala Val Ala Asp Lys Gln Ala
 35 40 45

Glu Ile Asp Gly Leu Asn Ala Gln Ile Asp Ala Glu Ile Arg Gln Arg
50 55 60

Glu Ala Glu Glu Leu Lys Asp Tyr Arg Trp Ile His Gly Asp Ala Glu
65 70 75 80

Val Pro Glu Leu Glu Lys
85

<210> 1804

<211> 279

<212> DNA

<213> *Neisseria meningitidis*

<400> 1804

atgggttatcg gaattattact cgcattcaagc aagcatgctc ttgtcattac tctattgtta 60
aatcccgtct tccatgcac cagttgcgta tcgcgttsgg caatacggaa taaaatctgc 120
tggtctgctt tggctaaatt tgccaaattg ttattgttt ctttaggagc agcttgctta 180
gccgccttcg ctttcgacaa cgcgccacaca ggcgcttccc aagcgttgcc taccgttacc 240
gcacccgttg cgattcccgc gccgccttcg gcagcctga 279

<210> 1805

<211> 92

<212> PRT

<213> *Neisseria meningitidis*

<220>

<221> misc_feature

<222> (1)...(92)

<223> Xaa is any Amino Acid

<400> 1805

Met Val Ile Gly Ile Leu Leu Ala Ser Ser Lys His Ala Leu Val Ile
5 10 15

Thr Leu Leu Leu Asn Pro Val Phe His Ala Ser Ser Cys Val Ser Arg
20 25 30

Xaa Ala Ile Arg Asn Lys Ile Cys Cys Ser Ala Leu Ala Lys Phe Ala
35 40 45

Lys Leu Phe Ile Val Ser Leu Gly Ala Ala Cys Leu Ala Ala Phe Ala
50 55 60

Phe Asp Asn Ala Pro Thr Gly Ala Ser Gln Ala Leu Pro Thr Val Thr
65 70 75 80

Ala Pro Val Ala Ile Pro Ala Pro Ala Ser Ala Ala
85 90

<210> 1806

<211> 312

<212> DNA

<213> *Neisseria meningitidis*

<400> 1806
 atggcttgta cagggttgat ggtttttccg ttaatggta tcggaatatt acttgcata 60
 agcaagcctg ctcttttcc tactctattg ttaaattccc tcttccatgc atccagttgc 120
 gtatcgcggtt gggcaatacg gaataaaatc tgctgtttctg ctttgggtaa atttgcacaa 180
 ttgtttattg ttcttttagg agcagcttgc ttagccgcct tcgctttcga caacgcccc 240
 acaggcgctt cccaagcgtt gcctaccgtt accgcacccg tggcgattcc cgcgcccgc 300
 tcggcagcct ga 312

<210> 1807
 <211> 103
 <212> PRT
 <213> Neisseria meningitidis

<400> 1807
 Met Ala Cys Thr Gly Leu Met Val Phe Pro Leu Met Val Ile Gly Ile
 5 10 15
 Leu Leu Ala Ser Ser Lys Pro Ala Pro Phe Leu Thr Leu Leu Asn
 20 25 30
 Pro Val Phe His Ala Ser Ser Cys Val Ser Arg Trp Ala Ile Arg Asn
 35 40 45
 Lys Ile Cys Cys Ser Ala Leu Ala Lys Phe Ala Lys Leu Phe Ile Val
 50 55 60
 Ser Leu Gly Ala Ala Cys Leu Ala Ala Phe Ala Phe Asp Asn Ala Pro
 65 70 75 80
 Thr Gly Ala Ser Gln Ala Leu Pro Thr Val Thr Ala Pro Val Ala Ile
 85 90 95
 Pro Ala Pro Ala Ser Ala Ala
 100

<210> 1808
 <211> 255
 <212> DNA
 <213> Neisseria meningitidis

<400> 1808
 atgttcagta ttttaaatgt gttttctcat tgtattctgg cttgtgtagt ctctgggtgag 60
 acgcctacta tatttggtat cctgtctctt ttttacttat tgtatctttc ttatcttgct 120
 gtttttaaga ttttcttttc ttttttctta gacagagttt cactccggtc tcccaggtcg 180
 gaggcgaat ggcataccac ttggctcac tggctcacgg ccacttctgc tattctgcg 240
 cctcagcctc caggg 255

<210> 1809
 <211> 85
 <212> PRT
 <213> Neisseria meningitidis

<400> 1809

Met Phe Ser Ile Leu Asn Val Phe Leu His Cys Ile Leu Ala Cys Val
5 10 15

Val Ser Gly Glu Thr Pro Thr Ile Phe Gly Ile Leu Ala Leu Phe Tyr
20 25 30

Leu Leu Tyr Leu Ser Tyr Leu Ala Val Phe Lys Ile Phe Phe Ser Phe
35 40 45

Phe Leu Asp Arg Val Ser Leu Arg Ser Pro Arg Leu Glu Cys Lys Trp
50 55 60

His Asp Pro Leu Ala His Trp Leu Thr Ala Thr Ser Ala Ile Leu Pro
65 70 75 80

Pro Gln Pro Pro Gly
85

<210> 1810
<211> 237
<212> DNA
<213> Neisseria meningitidis

<400> 1810
gtgcggacgt ggttggtttt ttggttgacg cgtttgaaat acccgttggt gctttggatt 60
gcggatatgt tgcgtaccg gttgttgggc ggcgcggaaa tcgaatgcgg ccgttgcctt 120
gtgccgcgga tgacggattg gcagcatttt ttgccggcga tgggaacggt gtccgcttgg 180
gtggcgggtga ttgggcata cctgatgatt gaaagtga aaacggaag atattga 237

<210> 1811
<211> 78
<212> PRT
<213> Neisseria meningitidis

<400> 1811
Val Arg Thr Trp Leu Val Phe Trp Leu Gln Arg Leu Lys Tyr Pro Leu
5 10 15

Leu Leu Trp Ile Ala Asp Met Leu Leu Tyr Arg Leu Leu Gly Gly Ala
20 25 30

Glu Ile Glu Cys Gly Arg Cys Pro Val Pro Pro Met Thr Asp Trp Gln
35 40 45

His Phe Leu Pro Ala Met Gly Thr Val Ser Ala Trp Val Ala Val Ile
50 55 60

Trp Ala Tyr Leu Met Ile Glu Ser Glu Lys Asn Gly Arg Tyr
65 70 75

<210> 1812
<211> 237
<212> DNA

<213> *Neisseria meningitidis*

<400> 1812

```
gtgcggacgt gggtgtgttt ttggttgacg cgtttgaaat acccgttgtt gctttgtatt 60
gcgatgatgc tgcgtgaccg gttgttgggc ggcgcggaat tcgaatgcgg ccgttgccct 120
gtaccgcgca tgacggattg gcagcatatt ttgccgacga tgggaacggt ggcgcgcttg 180
gtggcggtga tttgggcata cctgatgatt gaaagtgaat aaaacggaag atattga 237
```

<210> 1813

<211> 78

<212> PRT

<213> *Neisseria meningitidis*

<400> 1813

```
Val Arg Thr Trp Leu Val Phe Trp Leu Gln Arg Leu Lys Tyr Pro Leu
5 10 15
```

```
Leu Leu Cys Ile Ala Asp Met Leu Leu Tyr Arg Leu Leu Gly Ala
20 25 30
```

```
Glu Ile Glu Cys Gly Arg Cys Pro Val Pro Pro Met Thr Asp Trp Gln
35 40 45
```

```
His Phe Leu Pro Thr Met Gly Thr Val Ala Ala Trp Val Ala Val Ile
50 55 60
```

```
Trp Ala Tyr Leu Met Ile Glu Ser Glu Lys Asn Gly Arg Tyr
65 70 75
```

<210> 1814

<211> 660

<212> DNA

<213> *Neisseria meningitidis*

<400> 1814

```
atgtttcaaa attttgattt gggcgtgttc ctgcttgccg tcctcccccgt gctgcctccc 60
attaccgtct cgcacgtggc gcgcggtat acggcgcgct actggggaga caacactgcc 120
gaacaatacg gcagggtgac actgaacccc ctgcccataa tcgatttggt cggcacaatc 180
atcgtaaccg tgcttacttt gatgttcaac ccttctctgt tcgggtgggc gcgtcgatt 240
cctatcgatt cgcgcaactt ccgcaacccc cgccttgctt ggcgttgcgt tgcgcgctcc 300
ggcccgctgt cgaatctagc gatggctgtw ctgtggggcg tggttttggt gctgactccg 360
tatgtcggcg gggcgatatc gatgccgttg gctcaaatgg caaactacgg tattctgac 420
aatgcgattc tgttcgcgct caacatcact ccatcctgc cttgggacgg cggcattttc 480
atcgacacct tcctgtcggc gaaatattcg caagcgttcc gcaaaatcga acctatggg 540
acgtggatta tcctactgct gatgctgacc sgggttttgg gtgcgcttat wgcacggatt 600
stgcgmgatc gtgattgctt ttgtgcagat gtwcgtctga ctggctttca gacggcataa 660
```

<210> 1815

<211> 219

<212> PRT

<213> *Neisseria meningitidis*

<220>

<221> misc_feature
 <222> (1)...(219)
 <223> Xaa is any Amino Acid

<400> 1816

```
Met Phe Gln Asn Phe Asp Leu Gly Val Phe Leu Leu Ala Val Leu Pro
      5                               10                15

Val Leu Pro Ser Ile Thr Val Ser His Val Ala Arg Gly Tyr Thr Ala
      20                               25                30

Arg Tyr Trp Gly Asp Asn Thr Ala Glu Gln Tyr Gly Arg Leu Thr Leu
      35                               40                45

Asn Pro Leu Pro His Ile Asp Leu Val Gly Thr Ile Ile Val Pro Leu
      50                               55                60

Leu Thr Leu Met Phe Thr Pro Phe Leu Phe Gly Trp Ala Arg Pro Ile
      65                               70                75                80

Pro Ile Asp Ser Arg Asn Phe Arg Asn Pro Arg Leu Ala Trp Arg Cys
      85                               90                95

Val Ala Ala Ser Gly Pro Leu Ser Asn Leu Ala Met Ala Val Leu Trp
      100                              105                110

Gly Val Val Leu Val Leu Thr Pro Tyr Val Gly Gly Ala Tyr Gln Met
      115                              120                125

Pro Leu Ala Gln Met Ala Asn Tyr Gly Ile Leu Ile Asn Ala Ile Leu
      130                              135                140

Phe Ala Leu Asn Ile Ile Pro Ile Leu Pro Trp Asp Gly Gly Ile Phe
      145                              150                155                160

Ile Asp Thr Phe Leu Ser Ala Lys Tyr Ser Gln Ala Phe Arg Lys Ile
      165                              170                175

Glu Pro Tyr Gly Thr Trp Ile Ile Leu Leu Leu Met Leu Thr Xaa Val
      180                              185                190

Leu Gly Ala Phe Ile Ala Pro Ile Xaa Arg Xaa Arg Asp Cys Xaa Cys
      195                              200                205

Ala Asp Val Arg Leu Thr Gly Phe Gln Thr Ala
      210                              215
```

<210> 1816
 <211> 639
 <212> DNA
 <213> Neisseria meningitidis

<400> 1816

```
atgtttcaaa attttgattt gggcggtgtt ctgcttgcgc tectgccgct gctgctctcc 60
attaccgtca gggaggtggc gcgcggctat acggcgcgct actggggaga caacactgcc 120
gaacaatacg gcaggctgac actgaacccc ctgcccata tcgatttggt cggcacaatc 180
```

```

atcgtaaccgc tgccttacttt gatgttcaacg cccttctctgt tcggctgggc gcgtccgatt 240
cctatcgatt cgcgcaactt ccgcaaccgc cgccttgccg ggcggtgcgt tgcgcgctcc 300
ggcccgctgt cgaatctagc gatggctgtt ctgtggggcg tggttttggt gctgactccg 360
tatgtcggcg gggcgatatca gatgccgttg gctcaaatgg caaactacgg tattctgac 420
aatcgatc tggtcgcgt caacatcctc cccatcctgc cttggggacgg cggcattttc 480
atcgacacct tcctgtcggc gaaatattcg caagcgttcc gcaaaatcga accttatggg 540
acgtggatta tcctactgct gatgctgacc ggggttttgg gtgcggttat tgcaccgatt 600
gtgcggctgg tgattgcgtt tgtgcagatg ttctgtctga 639

```

```

<210> 1817
<211> 212
<212> PRT
<213> Neisseria meningitidis

```

```

<400> 1817
Met Phe Gln Asn Phe Asp Leu Gly Val Phe Leu Leu Ala Val Leu Pro
      5              10              15

Val Leu Leu Ser Ile Thr Val Arg Glu Val Ala Arg Gly Tyr Thr Ala
      20              25              30

Arg Tyr Trp Gly Asp Asn Thr Ala Glu Gln Tyr Gly Arg Leu Thr Leu
      35              40              45

Asn Pro Leu Pro His Ile Asp Leu Val Gly Thr Ile Ile Val Pro Leu
      50              55              60

Leu Thr Leu Met Phe Thr Pro Phe Leu Phe Gly Trp Ala Arg Pro Ile
      65              70              75              80

Pro Ile Asp Ser Arg Asn Phe Arg Asn Pro Arg Leu Ala Trp Arg Cys
      85              90              95

Val Ala Ala Ser Gly Pro Leu Ser Asn Leu Ala Met Ala Val Leu Trp
      100             105             110

Gly Val Val Leu Val Leu Thr Pro Tyr Val Gly Gly Ala Tyr Gln Met
      115             120             125

Pro Leu Ala Gln Met Ala Asn Tyr Gly Ile Leu Ile Asn Ala Ile Leu
      130             135             140

Phe Ala Leu Asn Ile Ile Pro Ile Leu Pro Trp Asp Gly Gly Ile Phe
      145             150             155             160

Ile Asp Thr Phe Leu Ser Ala Lys Tyr Ser Gln Ala Phe Arg Lys Ile
      165             170             175

Glu Pro Tyr Gly Thr Trp Ile Ile Leu Leu Leu Met Leu Thr Gly Val
      180             185             190

Leu Gly Ala Phe Ile Ala Pro Ile Val Arg Leu Val Ile Ala Phe Val
      195             200             205

Gln Met Phe Val
      210

```


<210> 1818
 <211> 558
 <212> DNA
 <213> *Neisseria meningitidis*

<220>
 <221> misc_feature
 <222> (1)...(558)
 <223> n = A,T,C or G

```
<400> 1818
cgcggcgtata cagcgcgcta ctgggggtgac aacactgcgc aacaatacgg caggctgaca 60
ctgaaccccc tgccccatat cgatttggtc ggcacaatca tcgtaccgct gottactttg 120
atgtttacgc ccttctgttt cggctgggcg cgtccgattc ctatcgattc gcgcaacttc 180
cgcaacccgc gcccttgctg cgtttgctgt gccgcgtccg gcccgctgtc gaactctggcg 240
atggctgttc tgtggggcgt ggttttgggt ctgactccgt atgtcggtag gccgtatcag 300
atgccgtagg cncaaaatggc aaactacnnn attctgatca atgcgattct gtncgcgctc 360
aacatcatcc ccactcctgcc ttgggacggc ggcatattta tcgacacctt cctgtcggcn 420
aaatantcgc aagcgttccg caaaatcgaa ccttatggga cgtggattat ccngctgctt 480
atgctgaccg gggttttggg tgcgtntatt gcaccgattg tgcagctggt gattgcgttt 540
gtgcagatgt tcgtctga 558
```

<210> 1819
 <211> 185
 <212> PRT
 <213> *Neisseria meningitidis*

<220>
 <221> misc_feature
 <222> (1)...(185)
 <223> Xaa is any Amino Acid

```
<400> 1819
Arg Gly Tyr Thr Ala Arg Tyr Trp Gly Asp Asn Thr Ala Glu Gln Tyr
      5              10              15

Gly Arg Leu Thr Leu Asn Pro Leu Pro His Ile Asp Leu Val Gly Thr
      20              25              30

Ile Ile Val Pro Leu Leu Thr Leu Met Phe Thr Pro Phe Leu Phe Gly
      35              40              45

Trp Ala Arg Pro Ile Pro Ile Asp Ser Arg Asn Phe Arg Asn Pro Arg
      50              55              60

Leu Ala Trp Arg Cys Val Ala Ala Ser Gly Pro Leu Ser Asn Leu Ala
      65              70              75              80

Met Ala Val Leu Trp Gly Val Val Leu Val Leu Thr Pro Tyr Val Gly
      85              90              95

Gly Ala Tyr Gln Met Pro Leu Ala Gln Met Ala Asn Tyr Xaa Ile Leu
      100              105              110
```

Ile Asn Ala Ile Leu Xaa Ala Leu Asn Ile Ile Pro Ile Leu Pro Trp
 115 120 125

Asp Gly Gly Ile Phe Ile Asp Thr Phe Leu Ser Ala Lys Xaa Ser Gln
 130 135 140

Ala Phe Arg Lys Ile Glu Pro Tyr Gly Thr Trp Ile Ile Xaa Leu Leu
 145 150 155 160

Met Leu Thr Gly Val Leu Gly Ala Xaa Ile Ala Pro Ile Val Gln Leu
 165 170 175

Val Ile Ala Phe Val Gln Met Phe Val
 180 185

<210> 1820

<211> 498

<212> DNA

<213> *Neisseria meningitidis*

<400> 1820

atgaacctga tttaacgtta catcatccgt caaatggcgg ttatggcggg ttacgcgctc 60
 cttgccttcc tcgcttttga cagctttttt gaaatcctgt acgaaaccgg caacctcggc 120
 aaaggcagtt acggcatatg gaaatgctg ggctacaccg ccctcaaat gccgcgccgc 180
 gcctacgaac tgattccctt cgcgcgtcctt atcggcggac tggctcctct cagccagctt 240
 gccgcgggca gcaactgac cgtcatcaaa gccagcggca tgagcaccaa aaagctgctg 300
 ttgattctgt cgcagttcgg ttttattttt gctattgcca ccgtcgcgtt cggcgaatgg 360
 gttgcgccca cactgagcca aaaagccgaa aacatcaaa cgcgcgccat caacggcaaa 420
 atcagcaccg gcaataccgg cctttggctg aaagaaaaaa acagcgtgat caatgtgcgc 480
 gaaatgttgc ccgacccat 498

<210> 1821

<211> 166

<212> PRT

<213> *Neisseria meningitidis*

<400> 1821

Met Asn Leu Ile Ser Arg Tyr Ile Ile Arg Gln Met Ala Val Met Ala
 5 10 15

Val Tyr Ala Leu Leu Ala Phe Leu Ala Leu Tyr Ser Phe Phe Glu Ile
 20 25 30

Leu Tyr Glu Thr Gly Asn Leu Gly Lys Gly Ser Tyr Gly Ile Trp Glu
 35 40 45

Met Leu Gly Tyr Thr Ala Leu Lys Met Pro Ala Arg Ala Tyr Glu Leu
 50 55 60

Ile Pro Leu Ala Val Leu Ile Gly Gly Leu Val Ser Leu Ser Gln Leu
 65 70 75 80

Ala Ala Gly Ser Glu Leu Thr Val Ile Lys Ala Ser Gly Met Ser Thr
 85 90 95

Lys Lys Leu Leu Leu Ile Leu Ser Gln Phe Gly Phe Ile Phe Ala Ile
 100 105 110
 Ala Thr Val Ala Leu Gly Glu Trp Val Ala Pro Thr Leu Ser Gln Lys
 115 120 125
 Ala Glu Asn Ile Lys Ala Ala Ala Ile Asn Gly Lys Ile Ser Thr Gly
 130 135 140
 Asn Thr Gly Leu Trp Leu Lys Glu Lys Asn Ser Val Ile Asn Val Arg
 145 150 155 160
 Glu Met Leu Pro Asp His
 165

<210> 1822
 <211> 980
 <212> DNA
 <213> *Neisseria meningitidis*

<400> 1822
 atgaacctga tttaacgtta catcatccgt caaatggcgg ttatggcgg ttacgcgctc 60
 cttgccttcc tcgctttgta cagctttttt gaaatccgtg acgaaaccgg caacctcggc 120
 aaagcgagtt acggcatatg ggaaatgctg ggctacacgg ccctcaaat gcccgcggc 180
 gcctacgaac tgattccctt cgcgcgtcctt atcggcggac tggctcctct cagccagctt 240
 gccgcgggca gcgaactgac cgtcatcaaa gccagcggca tgagcaccaa aaagctgctg 300
 ttgattctgt cgcagttcgg ttttattttt gctattgcca ccgtcgcgt cgcggaatgg 360
 gttgcgcca cactgagcca aaaagcggaa aacatcaaa cgcgcggcat caacggcaaa 420
 atcagcaccg gcaataccgg cctttggctg aaagaaaaaa acagertkat caatgtgcgc 480
 gaaatgttgc ccgaccatac gcttttgggc atcaaaattt gggcgcgcaa cgataaaaac 540
 gaattggcag aggcagtgga agccgattcc gccgttttga acagcgcagg cagttggcag 600
 ttgaaaaaca tccgcgcgag cagcgttggc gaagacaaa togaggtctc tattgcggct 660
 gaagaaaaat ggcgcgattt cgtcaaacgc aacctgatgg acgtattgct cgtcaaaccc 720
 gaccaaattg ccgtcggcga actgaccacc tacatccgcc acctccaaaa caacagccaa 780
 aacaccgaa tctacgccat cgcattggtg cgcaaatgg tttacccgc cgcagcctgg 840
 tgatggcgc tcgtcgctt tgcctttacc ccgcaaacca cccgccacgg caatatgggc 900
 ttaaaactct tcggcggcat ctgtstcgga ttgctgttcc accttgcggc acggctcttt 960
 gggtttacca gccaaactcg 980

<210> 1823
 <211> 326
 <212> PRT
 <213> *Neisseria meningitidis*

<220>
 <221> misc_feature
 <222> (1)...(326)
 <223> Xaa is any Amino Acid

<400> 1823
 Met Asn Leu Ile Ser Arg Tyr Ile Ile Arg Gln Met Ala Val Met Ala
 5 10 15
 Val Tyr Ala Leu Leu Ala Phe Leu Ala Leu Tyr Ser Phe Phe Glu Ile
 20 25 30

Leu Tyr Glu Thr Gly Asn Leu Gly Lys Gly Ser Tyr Gly Ile Trp Glu
 35 40 45
 Met Leu Gly Tyr Thr Ala Leu Lys Met Pro Ala Arg Ala Tyr Glu Leu
 50 55 60
 Ile Pro Leu Ala Val Leu Ile Gly Gly Leu Val Ser Leu Ser Gln Leu
 65 70 75 80
 Ala Ala Gly Ser Glu Leu Thr Val Ile Lys Ala Ser Gly Met Ser Thr
 85 90 95
 Lys Lys Leu Leu Leu Ile Leu Ser Gln Phe Gly Phe Ile Phe Ala Ile
 100 105 110
 Ala Thr Val Ala Leu Gly Glu Trp Val Ala Pro Thr Leu Ser Gln Lys
 115 120 125
 Ala Glu Asn Ile Lys Ala Ala Ala Ile Asn Gly Lys Ile Ser Thr Gly
 130 135 140
 Asn Thr Gly Leu Trp Leu Lys Glu Lys Asn Ser Xaa Ile Asn Val Arg
 145 150 155 160
 Glu Met Leu Pro Asp His Thr Leu Leu Gly Ile Lys Ile Trp Ala Arg
 165 170 175
 Asn Asp Lys Asn Glu Leu Ala Glu Ala Val Glu Ala Asp Ser Ala Val
 180 185 190
 Leu Asn Ser Asp Gly Ser Trp Gln Leu Lys Asn Ile Arg Arg Ser Thr
 195 200 205
 Leu Gly Glu Asp Lys Val Glu Val Ser Ile Ala Ala Glu Glu Asn Trp
 210 215 220
 Pro Ile Ser Val Lys Arg Asn Leu Met Asp Val Leu Leu Val Lys Pro
 225 230 235 240
 Asp Gln Met Ser Val Gly Glu Leu Thr Thr Tyr Ile Arg His Leu Gln
 245 250 255
 Asn Asn Ser Gln Asn Thr Arg Ile Tyr Ala Ile Ala Trp Trp Arg Lys
 260 265 270
 Leu Val Tyr Pro Ala Ala Ala Trp Val Met Ala Leu Val Ala Phe Ala
 275 280 285
 Phe Thr Pro Gln Thr Thr Arg His Gly Asn Met Gly Leu Lys Leu Phe
 290 295 300
 Gly Gly Ile Cys Xaa Gly Leu Leu Phe His Leu Ala Gly Arg Leu Phe
 305 310 315 320
 Gly Phe Thr Ser Gln Leu
 325

<210> 1824
 <211> 1071
 <212> DNA
 <213> *Neisseria meningitidis*

<220>
 <221> misc_feature
 <222> (1)...(1076)
 <223> n = A,T,C or G

<400> 1824
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 cttgccttcc tgcgtttgta cagctttttt gaaatcctgt acgaaaccgg caacctcggc 120
 aaaggcgatt acggcatatg ggaaatgntg ggntacaccg ccctcaaaat gncgcgccgc 180
 gctacgaac tgatgccctt cgcgccttct atcggcggac tggctctctn cagccagctt 240
 gccgcggcga gcgaactgan cgtcatcaaa gccagcggca tgagaccaaa aaagctgctg 300
 ttgattctgt cgcagttcgg ttttattttt gctattgcca ccgtcgcgtt cggcgaatgg 360
 gttgcgccta cactgagcca aaaagccgaa aacatcaaa cgcgcggcat caacggcaaa 420
 atcagatccg gcaataccgg cctttgggtg aaagaaaaaa acagcattat caatgtgcgc 480
 gaaatgttgc cgcaccatac cctgctgggg attaaaaatc ggcccccga cgtataaaac 540
 gaactggcag aggcagtgga agccgattcc gccgttttga acagcgacgg cagttggcag 600
 ttgaaaaaca tccgcgcgcg cagcgtttgc gaagacaaa tcgaggtctc tattgcggct 660
 gaagaaaaat ggcgcgattc cgtcaaacgc aacctgatgg acgtattgct cgtcaaaccc 720
 gaccaaatgt ccgtcggcga actgaccacc tacatccgcc acctccaaan nnacagccaa 780
 aacaccgcaa tctacgccat cgcattgggt cgcgaattgg tttaaccgcc cgcagcctgg 840
 gtgatggcgc tgcgtgcctt tgcctttacc ccgcaaacca cccgccacgg caatatgggc 900
 ttaaaantct tcggcggcat ctgtctcgga ttgctgttcc accttgcggc ncggtctctc 960
 nggtttacca gccaaactca cggcatcccg cccttctcgc ncggcgact acctaccata 1020
 gccttcgcct tgcgtgcggt ttgctgata cgcaaacagg aaaaacgcta a 1071

<210> 1825
 <211> 356
 <212> PRT
 <213> *Neisseria meningitidis*

<220>
 <221> misc_feature
 <222> (1)...(356)
 <223> Xaa is any Amino Acid

<400> 1825
 Met Asn Leu Ile Ser Arg Tyr Ile Ile Arg Gln Met Ala Val Met Ala
 5 10 15
 Val Tyr Ala Leu Leu Ala Phe Leu Ala Leu Tyr Ser Phe Phe Glu Ile
 20 25 30
 Leu Tyr Glu Thr Gly Asn Leu Gly Lys Gly Ser Tyr Gly Ile Trp Glu
 35 40 45
 Met Xaa Gly Tyr Thr Ala Leu Lys Met Xaa Ala Arg Ala Tyr Glu Leu
 50 55 60
 Met Pro Leu Ala Val Leu Ile Gly Gly Leu Val Ser Xaa Ser Gln Leu

65		70		75		80
Ala Ala Gly Ser Glu	Leu Xaa Val Ile Lys	Ala Ser Gly Met Ser Thr				
	85		90		95	
Lys Lys Leu Leu Leu Ile Leu Ser Gln Phe Gly Phe Ile Phe Ala Ile			105		110	
	100					
Ala Thr Val Ala Leu Gly Glu Trp Val Ala Pro Thr Leu Ser Gln Lys			120		125	
	115					
Ala Glu Asn Ile Lys Ala Ala Ala Ile Asn Gly Lys Ile Ser Thr Gly			135		140	
	130					
Asn Thr Gly Leu Trp Leu Lys Glu Lys Asn Ser Ile Ile Asn Val Arg			150		155	
	145					160
Glu Met Leu Pro Asp His Thr Leu Leu Gly Ile Lys Ile Trp Ala Arg			165		170	
						175
Asn Asp Lys Asn Glu Leu Ala Glu Ala Val Glu Ala Asp Ser Ala Val			180		185	
						190
Leu Asn Ser Asp Gly Ser Trp Gln Leu Lys Asn Ile Arg Arg Ser Thr			195		200	
						205
Leu Gly Glu Asp Lys Val Glu Val Ser Ile Ala Ala Glu Glu Xaa Trp			210		215	
						220
Pro Ile Ser Val Lys Arg Asn Leu Met Asp Val Leu Leu Val Lys Pro			225		230	
						235
Asp Gln Met Ser Val Gly Glu Leu Thr Thr Tyr Ile Arg His Leu Gln			245		250	
						255
Xaa Xaa Ser Gln Asn Thr Arg Ile Tyr Ala Ile Ala Trp Trp Arg Lys			260		265	
						270
Leu Val Tyr Pro Ala Ala Ala Trp Val Met Ala Leu Val Ala Phe Ala			275		280	
						285
Phe Thr Pro Gln Thr Thr Arg His Gly Asn Met Gly Leu Lys Xaa Phe			290		295	
						300
Gly Gly Ile Cys Leu Gly Leu Leu Phe His Leu Ala Gly Arg Leu Phe			305		310	
						315
Xaa Phe Thr Ser Gln Leu Tyr Gly Ile Pro Pro Phe Leu Xaa Gly Ala			325		330	
						335
Leu Pro Thr Ile Ala Phe Ala Leu Leu Ala Val Trp Leu Ile Arg Lys			340		345	
						350
Gln Glu Lys Arg						
						355

<210> 1826
 <211> 856
 <212> DNA
 <213> *Neisseria meningitidis*

<220>
 <221> misc_feature
 <222> (1)...(856)
 <223> n = A,T,C or G

<400> 1826
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 gtttcaactga aaacttcagg cgacctttgc ggcaaaactca aaaccaccct taaaactttg 120
 gtctgctctt tggtttccct gagtatggta ttgcctgccc atgcccaaat taccaccgac 180
 aaatcagcac ctaaaaacca gcagggtcgtt atccttaaaa ccaacactgg tgcccccttg 240
 gtgaatatcc aaactccgaa tggacgcgga ttgagccaca accgctanta cgcatttgat 300
 gttgacaaca aaggggcagt gttaaacaac gaccgttaaca ataatccgtt tgtggtcaaa 360
 ggcagtgcgc aattgatatt gaacgaggtta cgcggtacgg ctagcaaaat caacggcatc 420
 gttaccgtag gcggtcaaaa ggcgcagctg attattgcca accccaacgg cattaccggt 480
 aatggcggcg gctttaaaaa tgtcggtcgg ggcattctaa ctaccggtcg gccccaaatc 540
 ggcaagacgc gtgcactgac aggatttgat gtgcgtcaag gcacattgga ccgtagragc 600
 agcaggttgg aatgataaag gcggagcmim ytacaccggg gtacttgcct gtgcagttgc 660
 tttgcagggg aaattwmngg gtaanaaact ggcggtttct accggtcctc agaaagtaga 720
 ttacgcagcg ggcgaaatca gtgcaggtac ggcagcgggt acgaaaccga ctattgcctt 780
 tgatactgcc gcaactggcg gtatgtacgc cgacagcatc acactgattg ccaatgaaaa 840
 aggcgtaggc gctctaa 856

<210> 1827
 <211> 284
 <212> PRT
 <213> *Neisseria meningitidis*

<220>
 <221> misc_feature
 <222> (1)...(284)
 <223> Xaa is any Amino Acid

<400> 1827
 Ala Val Ala Glu Thr Ala Asn Ser Gln Gly Lys Gly Lys Gln Ala Gly
 5 10 15
 Ser Ser Val Ser Val Ser Leu Lys Thr Ser Gly Asp Leu Cys Gly Lys
 20 25 30
 Leu Lys Thr Thr Leu Lys Thr Leu Val Cys Ser Leu Val Ser Leu Ser
 35 40 45
 Met Val Leu Pro Ala His Ala Gln Ile Thr Thr Asp Lys Ser Ala Pro
 50 55 60
 Lys Asn Gln Gln Val Val Ile Leu Lys Thr Asn Thr Gly Ala Pro Leu
 65 70 75 80
 Val Asn Ile Gln Thr Pro Asn Gly Arg Gly Leu Ser His Asn Arg Xaa
 85 90 95

Tyr Ala Phe Asp Val Asp Asn Lys Gly Ala Val Leu Asn Asn Asp Arg
 100 105 110
 Asn Asn Asn Pro Phe Val Val Lys Gly Ser Ala Gln Leu Ile Leu Asn
 115 120 125
 Glu Val Arg Gly Thr Ala Ser Lys Leu Asn Gly Ile Val Thr Val Gly
 130 135 140
 Gly Gln Lys Ala Asp Val Ile Ile Ala Asn Pro Asn Gly Ile Thr Val
 145 150 155 160
 Asn Gly Gly Gly Phe Lys Asn Val Gly Arg Gly Ile Leu Thr Thr Gly
 165 170 175
 Ala Pro Gln Ile Gly Lys Asp Gly Ala Leu Thr Gly Phe Asp Val Val
 180 185 190
 Lys Ala His Trp Thr Val Xaa Ala Ala Gly Trp Asn Asp Lys Gly Gly
 195 200 205
 Ala Xaa Tyr Thr Gly Val Leu Ala Arg Ala Val Ala Leu Gln Gly Lys
 210 215 220
 Xaa Xaa Gly Lys Xaa Leu Ala Val Ser Thr Gly Pro Gln Lys Val Asp
 225 230 235 240
 Tyr Ala Ser Gly Glu Ile Ser Ala Gly Thr Ala Ala Gly Thr Lys Pro
 245 250 255
 Thr Ile Ala Leu Asp Thr Ala Ala Leu Gly Gly Met Tyr Ala Asp Ser
 260 265 270
 Ile Thr Leu Ile Ala Asn Glu Lys Gly Val Gly Val
 275 280

<210> 1828

<211> 5937

<212> DNA

<213> Neisseria meningitidis

<400> 1828

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 ctgaaaactt caggcgacct ttgcggcaaa ctcaaaaacca cccttaaaac ttgtgtctgc 180
 tccttggttt ccctgagtat ggtattgect gcccatgccc aaattaccac cgacaaatca 240
 gcacctaaaa accagcaggt cgttatccct aaaaccaaca ctggtgcccc ctggtgtaat 300
 atccaaactc cgaatggagc cggattgagc cacaaccgct atacgcagtt tgatgttgac 360
 aacaaagggg cagtggttaa caacgacggt aacaataatc cgtttgtggt caaaggcagt 420
 gcgcaattga ttttgaacga ggtacgcggt acggctagca aactcaacgg catcgttacc 480
 gtaggcggtc aaaagccga cgtgattatt gccaacccca acggcattac cgttaatggc 540
 ggcggtctta aaaatgtcgg tcggggcacc ttaactaccg gtgcgcacca aatcggcgaat 600
 gacggtgcac tgacaggatt tgatgtgcgt caaggcacat tgaccgtagg agcagcaggt 660
 tggatgata aaggcggagc cgactacacc ggggtacttg ctgcgtcagt tgccttgacg 720
 gggaattac agggtaaaaa cctggcggtt tctaccggtc ctcaaaaagt agattacgcc 780
 agcgcgaaa tcagtgcagg tacggcagcg ggtacgaaac cgactattgc ccttgatact 840

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ggcgctaaaa	atgcgcggca	actcgaagcg	gccaaagcaat	tgattgtgac	ttcgtcaggc	960
cgcatttgaaa	acacggcgcg	catcgccacc	actgcgcgacg	gcaccggaagc	ttcaccgcat	1020
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cggtatcgaga	gcaaaaggctt	attggtttatt	gagacgggag	aagatatcag	cttcggtaac	1140
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aatttggtag	ttgagagcaa	aactaatgtg	aacaaatgcc	aaggcccgccg	tactctgctg	1260
gccgacgggc	gtaccgtcat	caaggaggcc	agtattcaga	ctggcactac	cgtatcacagt	1320
tccagcagcc	gcgaacggca	attaggcaat	aacacacgca	ttaccggggc	agatgtttacc	1380
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<210> 1829

<211> 1978

<212> PRT

<213> *Neisseria meningitidis*

<400> 1829

Met Asn Lys Gly Leu His Arg Ile Ile Phe Ser Lys Lys His Ser Thr
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Met Val Ala Val Ala Glu Thr Ala Asn Ser Gln Gly Lys Gly Lys Gln
20 25 30

Ala Gly Ser Ser Val Ser Val Ser Leu Lys Thr Ser Gly Asp Leu Cys
35 40 45

Gly Lys Leu Lys Thr Thr Leu Lys Thr Leu Val Cys Ser Leu Val Ser
50 55 60

Leu Ser Met Val Leu Pro Ala His Ala Gln Ile Thr Thr Asp Lys Ser
65 70 75 80

Ala Pro Lys Asn Gln Gln Val Val Ile Leu Lys Thr Asn Thr Gly Ala
85 90 95

Pro Leu Val Asn Ile Gln Thr Pro Asn Gly Arg Gly Leu Ser His Asn
100 105 110

Arg Tyr Thr Gln Phe Asp Val Asp Asn Lys Gly Ala Val Leu Asn Asn
 115 120 125
 Asp Arg Asn Asn Asn Pro Phe Val Val Lys Gly Ser Ala Gln Leu Ile
 130 135 140
 Leu Asn Glu Val Arg Gly Thr Ala Ser Lys Leu Asn Gly Ile Val Thr
 145 150 155 160
 Val Gly Gly Gln Lys Ala Asp Val Ile Ile Ala Asn Pro Asn Gly Ile
 165 170 175
 Thr Val Asn Gly Gly Gly Phe Lys Asn Val Gly Arg Gly Ile Leu Thr
 180 185 190
 Thr Gly Ala Pro Gln Ile Gly Lys Asp Gly Ala Leu Thr Gly Phe Asp
 195 200 205
 Val Arg Gln Gly Thr Leu Thr Val Gly Ala Ala Gly Trp Asn Asp Lys
 210 215 220
 Gly Gly Ala Asp Tyr Thr Gly Val Leu Ala Arg Ala Val Ala Leu Gln
 225 230 235 240
 Gly Lys Leu Gln Gly Lys Asn Leu Ala Val Ser Thr Gly Pro Gln Lys
 245 250 255
 Val Asp Tyr Ala Ser Gly Glu Ile Ser Ala Gly Thr Ala Ala Gly Thr
 260 265 270
 Lys Pro Thr Ile Ala Leu Asp Thr Ala Ala Leu Gly Gly Met Tyr Ala
 275 280 285
 Asp Ser Ile Thr Leu Ile Ala Asn Glu Lys Gly Val Gly Val Lys Asn
 290 295 300
 Ala Gly Thr Leu Glu Ala Ala Lys Gln Leu Ile Val Thr Ser Ser Gly
 305 310 315 320
 Arg Ile Glu Asn Ser Gly Arg Ile Ala Thr Thr Ala Asp Gly Thr Glu
 325 330 335
 Ala Ser Pro Thr Tyr Leu Ser Ile Glu Thr Thr Glu Lys Gly Ala Ala
 340 345 350
 Gly Thr Phe Ile Ser Asn Gly Gly Arg Ile Glu Ser Lys Gly Leu Leu
 355 360 365
 Val Ile Glu Thr Gly Glu Asp Ile Ser Leu Arg Asn Gly Ala Val Val
 370 375 380
 Gln Asn Asn Gly Ser Arg Pro Ala Thr Thr Val Leu Asn Ala Gly His
 385 390 395 400
 Asn Leu Val Ile Glu Ser Lys Thr Asn Val Asn Asn Ala Lys Gly Pro
 405 410 415

Ala Thr Leu Ser Ala Asp Gly Arg Thr Val Ile Lys Glu Ala Ser Ile
 420 425 430
 Gln Thr Gly Thr Thr Val Tyr Ser Ser Ser Lys Gly Asn Ala Glu Leu
 435 440 445
 Gly Asn Asn Thr Arg Ile Thr Gly Ala Asp Val Thr Val Leu Ser Asn
 450 455 460
 Gly Thr Ile Ser Ser Ser Ala Val Ile Asp Ala Lys Asp Thr Ala His
 465 470 475 480
 Ile Glu Ala Gly Lys Pro Leu Ser Leu Glu Ala Ser Thr Val Thr Ser
 485 490 495
 Asp Ile Arg Leu Asn Gly Gly Ser Ile Lys Gly Gly Lys Gln Leu Ala
 500 505 510
 Leu Leu Ala Asp Asp Asn Ile Thr Ala Lys Thr Thr Asn Leu Asn Thr
 515 520 525
 Pro Gly Asn Leu Tyr Val His Thr Gly Lys Asp Leu Asn Leu Asn Val
 530 535 540
 Asp Lys Asp Leu Ser Ala Ala Ser Ile His Leu Lys Ser Asp Asn Ala
 545 550 555 560
 Ala His Ile Thr Gly Thr Ser Lys Thr Leu Thr Ala Ser Lys Asp Met
 565 570 575
 Gly Val Glu Ala Gly Ser Leu Asn Val Thr Asn Thr Asn Leu Arg Thr
 580 585 590
 Asn Ser Gly Asn Leu His Ile Gln Ala Ala Lys Gly Asn Ile Gln Leu
 595 600 605
 Arg Asn Thr Lys Leu Asn Ala Ala Lys Ala Leu Glu Thr Thr Ala Leu
 610 615 620
 Gln Gly Asn Ile Val Ser Asp Gly Leu His Ala Val Ser Ala Asp Gly
 625 630 635 640
 His Val Ser Leu Leu Ala Asn Gly Asn Ala Asp Phe Thr Gly His Asn
 645 650 655
 Thr Leu Thr Ala Lys Ala Asp Val Asn Ala Gly Ser Val Gly Lys Gly
 660 665 670
 Arg Leu Lys Ala Asp Asn Thr Asn Ile Thr Ser Ser Ser Gly Asp Ile
 675 680 685
 Thr Leu Val Ala Gly Asn Gly Ile Gln Leu Gly Asp Gly Lys Gln Arg
 690 695 700
 Asn Ser Ile Asn Gly Lys His Ile Ser Ile Lys Asn Asn Gly Gly Asn
 705 710 715 720

Ala	Asp	Leu	Lys	Asn	Leu	Asn	Val	His	Ala	Lys	Ser	Gly	Ala	Leu	Asn	
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Ile	His	Ser	Asp	Arg	Ala	Leu	Ser	Ile	Glu	Asn	Thr	Lys	Leu	Glu	Ser	
			740					745					750			
Thr	His	Asn	Thr	His	Leu	Asn	Ala	Gln	His	Glu	Arg	Val	Thr	Leu	Asn	
			755				760					765				
Gln	Val	Asp	Ala	Tyr	Ala	His	Arg	His	Leu	Ser	Ile	Thr	Gly	Ser	Gln	
			770			775					780					
Ile	Trp	Gln	Asn	Asp	Lys	Leu	Pro	Ser	Ala	Asn	Lys	Leu	Val	Ala	Asn	
785					790					795					800	
Gly	Val	Leu	Ala	Leu	Asn	Ala	Arg	Tyr	Ser	Gln	Ile	Ala	Asp	Asn	Thr	
			805						810					815		
Thr	Leu	Arg	Ala	Gly	Ala	Ile	Asn	Leu	Thr	Ala	Gly	Thr	Ala	Leu	Val	
			820					825					830			
Lys	Arg	Gly	Asn	Ile	Asn	Trp	Ser	Thr	Val	Ser	Thr	Lys	Thr	Leu	Glu	
		835					840					845				
Asp	Asn	Ala	Glu	Leu	Lys	Pro	Leu	Ala	Gly	Arg	Leu	Asn	Ile	Glu	Ala	
		850				855					860					
Gly	Ser	Gly	Thr	Leu	Thr	Ile	Glu	Pro	Ala	Asn	Arg	Ile	Ser	Ala	His	
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Thr	Asp	Leu	Ser	Ile	Lys	Thr	Gly	Gly	Lys	Leu	Leu	Leu	Ser	Ala	Lys	
			885						890					895		
Gly	Gly	Asn	Ala	Gly	Ala	Pro	Ser	Ala	Gln	Val	Ser	Ser	Leu	Glu	Ala	
		900						905					910			
Lys	Gly	Asn	Ile	Arg	Leu	Val	Thr	Gly	Glu	Thr	Asp	Leu	Arg	Gly	Ser	
		915					920					925				
Lys	Ile	Thr	Ala	Gly	Lys	Asn	Leu	Val	Val	Ala	Thr	Thr	Lys	Gly	Lys	
		930				935					940					
Leu	Asn	Ile	Glu	Ala	Val	Asn	Asn	Ser	Phe	Ser	Asn	Tyr	Phe	Pro	Thr	
945					950					955					960	
Gln	Lys	Ala	Ala	Glu	Leu	Asn	Gln	Lys	Ser	Lys	Glu	Leu	Glu	Gln	Gln	
			965						970					975		
Ile	Ala	Gln	Leu	Lys	Lys	Ser	Ser	Pro	Lys	Ser	Lys	Leu	Ile	Pro	Thr	
		980						985					990			
Leu	Gln	Glu	Glu	Arg	Asp	Arg	Leu	Ala	Phe	Tyr	Ile	Gln	Ala	Ile	Asn	
		995					1000					1005				
Lys	Glu	Val	Lys	Gly	Lys	Lys	Pro	Lys	Gly	Lys	Glu	Tyr	Leu	Gln	Ala	
	1010					1015						1020				

Lys Leu Ser Ala Gln Asn Ile Asp Leu Ile Ser Ala Gln Gly Ile Glu
 1025 1030 1035 1040
 Ile Ser Gly Ser Asp Ile Thr Ala Ser Lys Lys Leu Asn Leu His Ala
 1045 1050 1055
 Ala Gly Val Leu Pro Lys Ala Ala Asp Ser Glu Ala Ala Ile Leu
 1060 1065 1070
 Ile Asp Gly Ile Thr Asp Gln Tyr Glu Ile Gly Lys Pro Thr Tyr Lys
 1075 1080 1085
 Ser His Tyr Asp Lys Ala Ala Leu Asn Lys Pro Ser Arg Leu Thr Gly
 1090 1095 1100
 Arg Thr Gly Val Ser Ile His Ala Ala Ala Leu Asp Asp Ala Arg
 1105 1110 1115 1120
 Ile Ile Ile Gly Ala Ser Glu Ile Lys Ala Pro Ser Gly Ser Ile Asp
 1125 1130 1135
 Ile Lys Ala His Ser Asp Ile Val Leu Glu Ala Gly Gln Asn Asp Ala
 1140 1145 1150
 Tyr Thr Phe Leu Lys Thr Lys Gly Lys Ser Gly Lys Ile Ile Arg Lys
 1155 1160 1165
 Thr Lys Phe Thr Ser Thr Arg Asp His Leu Ile Met Pro Ala Pro Val
 1170 1175 1180
 Glu Leu Thr Ala Asn Gly Ile Thr Leu Gln Ala Gly Gly Asn Ile Glu
 1185 1190 1195 1200
 Ala Asn Thr Thr Arg Phe Asn Ala Pro Ala Gly Lys Val Thr Leu Val
 1205 1210 1215
 Ala Gly Glu Glu Leu Gln Leu Leu Ala Glu Glu Gly Ile His Lys His
 1220 1225 1230
 Glu Leu Asp Val Gln Lys Ser Arg Arg Phe Ile Gly Ile Lys Val Gly
 1235 1240 1245
 Lys Ser Asn Tyr Ser Lys Asn Glu Leu Asn Glu Thr Lys Leu Pro Val
 1250 1255 1260
 Arg Val Val Ala Gln Thr Ala Ala Thr Arg Ser Gly Trp Asp Thr Val
 1265 1270 1275 1280
 Leu Glu Gly Thr Glu Phe Lys Thr Thr Leu Ala Gly Ala Asp Ile Gln
 1285 1290 1295
 Ala Gly Val Gly Glu Lys Ala Arg Ala Asp Ala Lys Ile Ile Leu Lys
 1300 1305 1310
 Gly Ile Val Asn Arg Ile Gln Ser Glu Glu Lys Leu Glu Thr Asn Ser
 1315 1320 1325

Thr Val Trp Gln Lys Gln Ala Gly Arg Gly Ser Thr Ile Glu Thr Leu
 1330 1335 1340
 Lys Leu Pro Ser Phe Glu Ser Pro Thr Pro Pro Lys Leu Thr Ala Pro
 1345 1350 1355 1360
 Gly Gly Tyr Ile Val Asp Ile Pro Lys Gly Asn Leu Lys Thr Glu Ile
 1365 1370 1375
 Glu Lys Leu Ala Lys Gln Pro Glu Tyr Ala Tyr Leu Lys Gln Leu Gln
 1380 1385 1390
 Val Ala Lys Asn Val Asn Trp Asn Gln Val Gln Leu Ala Tyr Asp Lys
 1395 1400 1405
 Trp Asp Tyr Lys Gln Glu Gly Leu Thr Arg Ala Gly Ala Ala Ile Val
 1410 1415 1420
 Thr Ile Ile Val Thr Ala Leu Thr Tyr Gly Tyr Gly Ala Thr Ala Ala
 1425 1430 1435 1440
 Gly Gly Val Ala Ala Ser Gly Ser Ser Thr Ala Ala Ala Ala Gly Thr
 1445 1450 1455
 Ala Ala Thr Thr Thr Ala Ala Ala Thr Thr Val Ser Thr Ala Thr Ala
 1460 1465 1470
 Met Gln Thr Ala Ala Leu Ala Ser Leu Tyr Ser Gln Ala Ala Val Ser
 1475 1480 1485
 Ile Ile Asn Asn Lys Gly Asp Val Gly Lys Ala Leu Lys Asp Leu Gly
 1490 1495 1500
 Thr Ser Asp Thr Val Lys Gln Ile Val Thr Ser Ala Leu Thr Ala Gly
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 Ala Leu Asn Gln Met Gly Ala Asp Ile Ala Gln Leu Asn Ser Lys Val
 1525 1530 1535
 Arg Thr Glu Leu Phe Ser Ser Thr Gly Asn Gln Thr Ile Ala Asn Leu
 1540 1545 1550
 Gly Gly Arg Leu Ala Thr Asn Leu Ser Asn Ala Gly Ile Ser Ala Gly
 1555 1560 1565
 Ile Asn Thr Ala Val Asn Gly Gly Ser Leu Lys Asp Asn Leu Gly Asn
 1570 1575 1580
 Ala Ala Leu Gly Ala Leu Val Asn Ser Phe Gln Gly Glu Ala Ala Ser
 1585 1590 1595 1600
 Lys Ile Lys Thr Thr Phe Ser Asp Asp Tyr Val Ala Lys Gln Phe Ala
 1605 1610 1615
 His Ala Leu Ala Gly Cys Val Ser Gly Leu Val Gln Gly Lys Cys Lys
 1620 1625 1630

Asp Gly Ala Ile Gly Ala Ala Val Gly Glu Ile Val Ala Asp Ser Met
 1635 1640 1645
 Leu Gly Gly Arg Asn Pro Ala Thr Leu Ser Asp Ala Glu Lys His Lys
 1650 1655 1660
 Val Ile Ser Tyr Ser Lys Ile Ile Ala Gly Ser Val Ala Ala Leu Asn
 1665 1670 1675 1680
 Gly Gly Asp Val Asn Thr Ala Ala Asn Ala Ala Glu Val Ala Val Val
 1685 1690 1695
 Asn Asn Ala Leu Asn Phe Asp Ser Thr Pro Thr Asn Ala Lys Lys His
 1700 1705 1710
 Gln Pro Gln Lys Pro Asp Lys Thr Ala Leu Glu Lys Ile Ile Gln Gly
 1715 1720 1725
 Ile Met Pro Ala His Ala Ala Gly Ala Met Thr Asn Pro Gln Asp Lys
 1730 1735 1740
 Asp Ala Ala Ile Trp Ile Ser Asn Ile Arg Asn Gly Ile Thr Gly Pro
 1745 1750 1755 1760
 Ile Val Ile Thr Ser Tyr Gly Val Tyr Ala Ala Gly Trp Thr Ala Pro
 1765 1770 1775
 Leu Ile Gly Thr Ala Gly Lys Leu Ala Ile Ser Thr Cys Met Ala Asn
 1780 1785 1790
 Pro Ser Gly Cys Thr Val Met Val Thr Gln Ala Ala Glu Ala Gly Ala
 1795 1800 1805
 Gly Ile Ala Thr Gly Ala Val Thr Val Gly Asn Ala Trp Glu Ala Pro
 1810 1815 1820
 Val Gly Ala Leu Ser Lys Ala Lys Ala Ala Lys Gln Ala Ile Pro Thr
 1825 1830 1835 1840
 Gln Thr Val Lys Glu Leu Asp Gly Leu Leu Gln Glu Ser Lys Asn Ile
 1845 1850 1855
 Gly Ala Val Asn Thr Arg Ile Asn Ile Ala Asn Ser Thr Thr Arg Tyr
 1860 1865 1870
 Thr Pro Met Arg Gln Thr Gly Gln Pro Val Ser Ala Gly Phe Glu His
 1875 1880 1885
 Val Leu Glu Gly His Phe His Arg Pro Ile Ala Asn Asn Arg Ser Val
 1890 1895 1900
 Phe Thr Ile Ser Pro Asn Glu Leu Lys Val Ile Leu Gln Ser Asn Lys
 1905 1910 1915 1920
 Val Val Ser Ser Pro Val Ser Met Thr Pro Asp Gly Gln Tyr Met Arg
 1925 1930 1935

Thr Val Asp Val Gly Lys Val Ile Gly Thr Thr Ser Ile Lys Glu Gly
1940 1945 1950

Gly Gln Pro Thr Thr Thr Ile Lys Val Phe Thr Asp Lys Ser Gly Asn
1955 1960 1965

Leu Ile Thr Thr Tyr Pro Val Lys Gly Asn
1970 1975

<210> 1830
<211> 4599
<212> DNA
<213> *Neisseria meningitidis*

<220>
<221> misc_feature
<222> (1)...(4599)
<223> n = A,T,C or G

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ctgaaaactt caggcgacct ttgcggcaaa ctcaaaacca cccttaaaac ctgtgtctgc 180
tccttgggtt ccctgagtat ggnattncnn nncnntnccc aaattaccac cgacaaatca 240
gcacctaaaa accancaggt cgttatcctt aaaaccaaca ctggtgcccc ctgtgtgaat 300
atccaaactc ggaatggagc cggattgagc cacaaccgct atacgcagtt tgatgttgac 360
aacaaggagg cagtggttaa caacgaccgt aacaataatc cgtttctcgt caaaggcagt 420
gcgcaattga ttttgaacga ggtacgcggt acggctagca aactcaacgg catcggtacc 480
gtaggcggtc aaaaaggcca cgtgattatt gccaaaccca acggcattac cgttaatggc 540
ggcggtctta aaaaatgcgc tcggggcacc ttaactatcg gtgcgcccc aatcggcaaa 600
gacggtgcac tgacaggatt tgatgtgcgt caaggcacat tgaccgtagg agcagcaggt 660
tggaatgata aaggcggagc cgaactacac ggggtacttg ctgcgtcagt tgccttgca 720
gggaaattac agggtaaaaa cctggcggtt tctaccggtc ctcaaaaagt agattacgcc 780
agcggcgaaa tcagtgcagg tacggcagcg ggtacgaaac cgactattgc ccttgatact 840
gcgcgactgg cgggtattga cgccgacagc atcacactga ttgccatga aaaaaggcga 900
ggcgctcaaaa atgcggcgac actcgaagcg gccaaagcaat tgattgtcag ttctgcagcg 960
cgcatgtaaa acagcggcgc catcgccacc actgcgcgac gcaccgaaag ttaccagact 1020
tatctnncca tcgaaaccac gaaaaaagga gcnnacggca catttatctc caatgggtgt 1080
cggatcgaga gcaaaaggctt attggttatt gagacgggag aagatatcan ctgtcgtaac 1140
gaagccgtgt tgcagaataa cggcagtcgc ccagctacca cggattataa tgcctggcat 1200
aattgtgtga ttgagagtaa aactaatgtg aacaattgca aaggctcgnc taactctgtcg 1260
gccggcggtc gtaactacgt caatgatgct actattcaag cgggacgttc cgtgtacagc 1320
tccaccaag cggataactga nttgggtgaa aataccgcta ttattgctga aaacgtaacc 1380
gtattatcta acggtagtat tggcagtgct gctgtaattg aggctaaaag cactgcacac 1440
attgaactcg gcaaaaccgt ttctttagaa acctcgaccg ttgcctccaa catccgtttg 1500
aacaacggtt acattaaaag cggaaaagcag ctgtgctttc ttgcagacga taacattact 1560
gccaaaacta ccaatctgaa tactcccgcg aatctgtatg ttcatcacag taaagatctg 1620
aatttgaat ttgataaaga ttgtctgcgc gccagcatcc atttgaatc ggataacgct 1680
gccatatta ccggcaccag taaaaacctc actgcctcaa aagacatggt tgtggagcca 1740
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gcagccaaaag gcaaatattca gcttcgcaat accaagctga acggagccaa ggctctcgaa 1860
accaccgcat tgcagggcaa tatcgtttca gacggccttc atgtctgttc tcgacagcgt 1920
catgatctct tattggccaa cggtaatgcc gactttaccg gtacacatcc cctgacagcc 1980
aaggccgagt tcnatgcagg atcggtttgt aaaggccgtc tgaagacaga caataccaat 2040
atcacttcat cttcaggaga tattacgttg gttgccgnnn ncggtattca gcttggtgac 2100

ggaaaacaac	gcaattcaat	caacggaaaa	cacatcagca	tcaaaaacaa	cggtggtaat	2160
gccgacttaa	aaaaccttaa	cgtccatgcc	aaaagcgggg	cattgaaacat	tcattccgac	2220
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ggtgcaatca	acccttaactg	cggtagccg	ctagtcaagc	gcgggcaacat	caattggagt	2520
accgttttcca	ccaagacttt	ggaagataat	gccgaattaa	aaccattggc	cggacggctg	2580
aattattgaag	caggtagcgg	cacattaaac	atcgaaacctg	ccaacgcgat	tctgacgat	2640
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gctttctata	ttcaagccat	caacaaggaa	gttaaaggta	aaaaacccaa	aggcaaaagaa	3060
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ntgcaactcg	tgccagaaag	aggcatccac	aagcacgagt	tggatgtcca	aaaaagccgc	3720
cgctttatcg	gcatacaagt	aggtnagagc	aattacagta	aaaaacgaat	gaagcaaac	3780
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gaagaaaaat	tagaaaacaa	ctcaacccga	tgccagaaaac	aggccggcagc	cggcagcact	4020
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cagggtcagc	ttgcttacga	cagatgggac	tacaaaacag	agggtctaac	cgaagcaggt	4260
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aaaatcggcg	cttcggcact	gancaatgtc	agcgataagc	agtgatgcaa	caacctgacc	4560
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<210> 1831
 <211> 1532
 <212> PRT
 <213> *Neisseria meningitidis*

<220>
 <221> misc_feature
 <222> (1)...(1532)
 <223> Xaa is any Amino Acid

<400> 1831
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Met Val Ala Val Ala Glu Thr Ala Asn Ser Gln Gly Lys Gly Lys Gln
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 Ala Gly Ser Ser Val Ser Val Ser Leu Lys Thr Ser Gly Asp Leu Cys
 35 40 45
 Gly Lys Leu Lys Thr Thr Leu Lys Thr Leu Val Cys Ser Leu Val Ser
 50 55 60
 Leu Ser Met Xaa Xaa Xaa Xaa Xaa Gln Ile Thr Thr Asp Lys Ser
 65 70 75 80
 Ala Pro Lys Asn Xaa Gln Val Val Ile Leu Lys Thr Asn Thr Gly Ala
 85 90 95
 Pro Leu Val Asn Ile Gln Thr Pro Asn Gly Arg Gly Leu Ser His Asn
 100 105 110
 Arg Tyr Thr Gln Phe Asp Val Asp Asn Lys Gly Ala Val Leu Asn Asn
 115 120 125
 Asp Arg Asn Asn Asn Pro Phe Leu Val Lys Gly Ser Ala Gln Leu Ile
 130 135 140
 Leu Asn Glu Val Arg Gly Thr Ala Ser Lys Leu Asn Gly Ile Val Thr
 145 150 155 160
 Val Gly Gly Gln Lys Ala Asp Val Ile Ile Ala Asn Pro Asn Gly Ile
 165 170 175
 Thr Val Asn Gly Gly Phe Lys Asn Val Gly Arg Gly Ile Leu Thr
 180 185 190
 Ile Gly Ala Pro Gln Ile Gly Lys Asp Gly Ala Leu Thr Gly Phe Asp
 195 200 205
 Val Arg Gln Gly Thr Leu Thr Val Gly Ala Ala Gly Trp Asn Asp Lys
 210 215 220
 Gly Gly Ala Asp Tyr Thr Gly Val Leu Ala Arg Ala Val Ala Leu Gln
 225 230 235 240
 Gly Lys Leu Gln Gly Lys Asn Leu Ala Val Ser Thr Gly Pro Gln Lys
 245 250 255
 Val Asp Tyr Ala Ser Gly Glu Ile Ser Ala Gly Thr Ala Ala Gly Thr
 260 265 270
 Lys Pro Thr Ile Ala Leu Asp Thr Ala Ala Leu Gly Gly Met Tyr Ala
 275 280 285
 Asp Ser Ile Thr Leu Ile Ala Xaa Glu Lys Gly Val Gly Val Lys Asn
 290 295 300
 Ala Gly Thr Leu Glu Ala Ala Lys Gln Leu Ile Val Thr Ser Ser Gly
 305 310 315 320

Arg Ile Glu Asn Ser Gly Arg Ile Ala Thr Thr Ala Asp Gly Thr Glu
 325 330 335
 Ala Ser Pro Thr Tyr Leu Xaa Ile Glu Thr Thr Glu Lys Gly Ala Xaa
 340 345 350
 Gly Thr Phe Ile Ser Asn Gly Gly Arg Ile Glu Ser Lys Gly Leu Leu
 355 360 365
 Val Ile Glu Thr Gly Glu Asp Ile Xaa Leu Arg Asn Gly Ala Val Val
 370 375 380
 Gln Asn Asn Gly Ser Arg Pro Ala Thr Thr Val Leu Asn Ala Gly His
 385 390 395 400
 Asn Leu Val Ile Glu Ser Lys Thr Asn Val Asn Asn Ala Lys Gly Ser
 405 410 415
 Xaa Asn Leu Ser Ala Gly Gly Arg Thr Thr Ile Asn Asp Ala Thr Ile
 420 425 430
 Gln Ala Gly Ser Ser Val Tyr Ser Ser Thr Lys Gly Asp Thr Xaa Leu
 435 440 445
 Gly Glu Asn Thr Arg Ile Ile Ala Glu Asn Val Thr Val Leu Ser Asn
 450 455 460
 Gly Ser Ile Gly Ser Ala Ala Val Ile Glu Ala Lys Asp Thr Ala His
 465 470 475 480
 Ile Glu Ser Gly Lys Pro Leu Ser Leu Glu Thr Ser Thr Val Ala Ser
 485 490 495
 Asn Ile Arg Leu Asn Asn Gly Asn Ile Lys Gly Gly Lys Gln Leu Ala
 500 505 510
 Leu Leu Ala Asp Asp Asn Ile Thr Ala Lys Thr Thr Asn Leu Asn Thr
 515 520 525
 Pro Gly Asn Leu Tyr Val His Thr Gly Lys Asp Leu Asn Leu Asn Val
 530 535 540
 Asp Lys Asp Leu Ser Ala Ala Ser Ile His Leu Lys Ser Asp Asn Ala
 545 550 555 560
 Ala His Ile Thr Gly Thr Ser Lys Thr Leu Thr Ala Ser Lys Asp Met
 565 570 575
 Gly Val Glu Ala Gly Leu Leu Asn Val Thr Asn Thr Asn Leu Arg Thr
 580 585 590
 Asn Ser Gly Asn Leu His Ile Gln Ala Ala Lys Gly Asn Ile Gln Leu
 595 600 605
 Arg Asn Thr Lys Leu Asn Ala Ala Lys Ala Leu Glu Thr Thr Ala Leu
 610 615 620

Gln Gly Asn Ile Val Ser Asp Gly Leu His Ala Val Ser Ala Asp Gly
 625 630 635 640
 His Val Ser Leu Leu Ala Asn Gly Asn Ala Asp Phe Thr Gly His Asn
 645 650 655
 Thr Leu Thr Ala Lys Ala Asp Val Xaa Ala Gly Ser Val Gly Lys Gly
 660 665 670
 Arg Leu Lys Ala Asp Asn Thr Asn Ile Thr Ser Ser Ser Gly Asp Ile
 675 680 685
 Thr Leu Val Ala Xaa Xaa Gly Ile Gln Leu Gly Asp Gly Lys Gln Arg
 690 695 700
 Asn Ser Ile Asn Gly Lys His Ile Ser Ile Lys Asn Asn Gly Gly Asn
 705 710 715 720
 Ala Asp Leu Lys Asn Leu Asn Val His Ala Lys Ser Gly Ala Leu Asn
 725 730 735
 Ile His Ser Asp Arg Ala Leu Ser Ile Glu Asn Thr Lys Leu Glu Ser
 740 745 750
 Thr His Asn Thr His Leu Asn Ala Gln His Glu Arg Val Thr Leu Asn
 755 760 765
 Gln Val Asp Ala Tyr Ala His Arg His Leu Ser Ile Xaa Gly Ser Gln
 770 775 780
 Ile Trp Gln Asn Asp Lys Leu Pro Ser Ala Asn Lys Leu Val Ala Asn
 785 790 795 800
 Gly Val Leu Ala Xaa Asn Ala Arg Tyr Ser Gln Ile Ala Asp Asn Thr
 805 810 815
 Thr Leu Arg Ala Gly Ala Ile Asn Leu Thr Ala Gly Thr Ala Leu Val
 820 825 830
 Lys Arg Gly Asn Ile Asn Trp Ser Thr Val Ser Thr Lys Thr Leu Glu
 835 840 845
 Asp Asn Ala Glu Leu Lys Pro Leu Ala Gly Arg Leu Asn Ile Glu Ala
 850 855 860
 Gly Ser Gly Thr Leu Thr Ile Glu Pro Ala Asn Arg Ile Ser Ala His
 865 870 875 880
 Thr Asp Leu Ser Ile Lys Thr Gly Gly Lys Leu Leu Leu Ser Ala Lys
 885 890 895
 Gly Gly Asn Ala Gly Ala Xaa Ser Ala Gln Val Ser Ser Leu Glu Ala
 900 905 910
 Lys Gly Asn Ile Arg Leu Val Thr Gly Xaa Thr Asp Leu Arg Gly Ser
 915 920 925

Lys Ile Thr Ala Gly Lys Asn Leu Val Val Ala Thr Thr Lys Gly Lys
 930 935 940
 Leu Asn Ile Glu Ala Val Asn Asn Ser Phe Ser Asn Tyr Phe Xaa Thr
 945 950 955 960
 Gln Lys Xaa Xaa Xaa Leu Asn Gln Lys Ser Lys Glu Leu Glu Gln Gln
 965 970 975
 Ile Ala Gln Leu Lys Lys Ser Ser Xaa Lys Ser Lys Leu Ile Pro Thr
 980 985 990
 Leu Gln Glu Glu Arg Asp Arg Leu Ala Phe Tyr Ile Gln Ala Ile Asn
 995 1000 1005
 Lys Glu Val Lys Gly Lys Lys Pro Lys Gly Lys Glu Tyr Leu Gln Ala
 1010 1015 1020
 Lys Leu Ser Ala Gln Asn Ile Asp Leu Ile Ser Ala Gln Gly Ile Glu
 1025 1030 1035 1040
 Ile Ser Gly Ser Asp Ile Thr Ala Ser Lys Lys Leu Asn Leu His Ala
 1045 1050 1055
 Ala Gly Val Leu Pro Lys Ala Ala Asp Ser Glu Ala Ala Ala Ile Leu
 1060 1065 1070
 Ile Asp Gly Ile Thr Asp Gln Tyr Glu Ile Gly Lys Pro Thr Tyr Lys
 1075 1080 1085
 Ser His Tyr Asp Lys Ala Ala Leu Asn Lys Pro Ser Arg Leu Thr Gly
 1090 1095 1100
 Arg Thr Gly Val Ser Ile His Ala Ala Ala Ala Leu Asp Asp Ala Arg
 1105 1110 1115 1120
 Ile Ile Ile Gly Ala Ser Glu Ile Lys Ala Pro Ser Gly Ser Ile Asp
 1125 1130 1135
 Ile Lys Ala His Ser Asp Ile Val Leu Glu Ala Gly Gln Asn Asp Ala
 1140 1145 1150
 Tyr Thr Phe Leu Xaa Thr Lys Gly Lys Ser Gly Xaa Xaa Ile Arg Lys
 1155 1160 1165
 Thr Lys Phe Thr Ser Thr Xaa Xaa His Leu Ile Met Pro Ala Pro Val
 1170 1175 1180
 Glu Leu Thr Ala Asn Gly Ile Thr Leu Gln Ala Gly Gly Asn Ile Glu
 1185 1190 1195 1200
 Ala Asn Thr Thr Arg Phe Asn Ala Pro Ala Gly Lys Val Thr Leu Val
 1205 1210 1215
 Ala Gly Glu Xaa Xaa Gln Leu Leu Ala Glu Glu Gly Ile His Lys His
 1220 1225 1230

Glu Leu Asp Val Gln Lys Ser Arg Arg Phe Ile Gly Ile Lys Val Gly
 1235 1240 1245
 Xaa Ser Asn Tyr Ser Lys Asn Glu Leu Asn Glu Thr Lys Leu Pro Val
 1250 1255 1260
 Arg Val Val Ala Gln Xaa Ala Ala Thr Arg Ser Gly Trp Asp Thr Val
 1265 1270 1275 1280
 Leu Glu Gly Thr Glu Phe Lys Thr Thr Leu Ala Gly Ala Asp Ile Gln
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 Ala Gly Val Xaa Glu Lys Ala Arg Val Asp Ala Lys Ile Ile Leu Lys
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 Gly Ile Val Asn Arg Ile Gln Ser Glu Glu Lys Leu Glu Thr Asn Ser
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 Lys Leu Pro Ser Phe Glu Ser Pro Thr Pro Pro Lys Leu Ser Ala Pro
 1345 1350 1355 1360
 Gly Gly Tyr Ile Val Asp Ile Pro Lys Gly Asn Leu Lys Thr Glu Ile
 1365 1370 1375
 Glu Lys Leu Ser Lys Gln Pro Glu Tyr Ala Tyr Leu Lys Gln Leu Gln
 1380 1385 1390
 Val Ala Lys Asn Ile Asn Trp Asn Gln Val Gln Leu Ala Tyr Asp Arg
 1395 1400 1405
 Trp Asp Tyr Lys Gln Glu Gly Leu Thr Glu Ala Gly Ala Ala Ile Ile
 1410 1415 1420
 Ala Leu Ala Val Thr Val Val Thr Ser Gly Ala Gly Thr Gly Ala Val
 1425 1430 1435 1440
 Leu Gly Leu Asn Gly Ala Xaa Ala Ala Ala Thr Asp Ala Ala Phe Ala
 1445 1450 1455
 Ser Leu Ala Ser Gln Ala Ser Val Ser Phe Ile Asn Asn Lys Gly Asp
 1460 1465 1470
 Val Gly Lys Thr Leu Lys Glu Leu Gly Arg Ser Ser Thr Val Lys Asn
 1475 1480 1485
 Leu Val Val Ala Ala Ala Thr Ala Gly Val Ala Asp Lys Ile Gly Ala
 1490 1495 1500
 Ser Ala Leu Xaa Asn Val Ser Asp Lys Gln Trp Ile Asn Asn Leu Thr
 1505 1510 1515 1520
 Val Asn Leu Ala Asn Xaa Gly Gln Cys Arg Thr Asp
 1525 1530

<210> 1832
 <211> 1782
 <212> DNA
 <213> *Neisseria meningitidis*

<220>
 <221> misc_feature
 <222> (1)...(1782)
 <223> n = A,T,C or G

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<400> 1832
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aaagcaggac acgacatcga tatttctact gccataatc gctataccgg caatgaatac 180
cacgagagca waaawtcagg cgtcatgggt attcggcggt tgggotttac tatcggtaac 240
cggaaaaacta ccgatgacac tgatcgtacc aatattgtsc atacaggcag cattataggc 300
agcctgaatg gagacacccg tacagttgca ggaaaccgct accgacaaac cggcagttacc 360
gtctccagcc ccgagggggcg caataccgtc acagccaaaw gcataagatg agagttcgca 420
aacaaccgggt atgccaactga ctacgcccac acccagggaa caaaaaggcc ttaccgtcgc 480
cctcaatgtc ccggtgtgtcc aagctgcaca aaacttcata caagcagccc aaaatgtggg 540
caaaagttaa aataaacgcg ttaatgcoat ggctgcagcc aatgctgat gccagagtta 600
tcaagcaacc caacaaatgc aacaatttgc tccaagcagc agtgcgggac aagggtcaaaa 660
ctacaatcaa agccccagta tcagtgtgtc cattactnac ggcaacaga aaagtcgtaa 720
cgagcaaaaa agacattaca ccgaagcggc agcaagtcaa attatcgcca aagggtcaaac 780
cacacttgcc gcaacaggaa gtggggagca gtccaatata aatattacag gttccgatgt 840
catcgcccat gcagggtact cncctattgc cgacaacctc atcagactcc aatctgcca 900
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caaaaataggc aacgggcatca ggttttgaat taccgcggga ggaatatcgc gtaaaaggtaa 1020
agagcaatagg ggaagtacta ccacccgcca caccatgtc ggacgacaaa ccgggcaaaa 1080
taccatccga agcggcgggg gataccaccc tcaaaaggtg gcagctcacc ggcaaggcca 1140
tacaggcaga taocgcgaac ctgcataatg aaagtgttca agatactgaa acctatcaga 1200
gcaaacagca aaacggcaca gtccaagttt actgtcgggt acggattcag tgcaggcggc 1260
agttaccgcc aaagcaaaat caaagcagac catgcctccg taaccgggca aagcgggtatt 1320
tatgccggag aagacggcta tcaaatyaaa gtyagagaca acacagacct yaagggcggt 1380
atcatcagct atgaccaaaag cgcagaagat aagggcaaaa acctttttca gcaggccacc 1440
cttactgcca cgcacattca aaacccacag cgctacgaag gcgaagagctt cggcatagctt 1500
ggcagtttgc acctgaacgg cggctgggac ggcaaggtta ccgacaaaca aggcaggcct 1560
accgacagga taagcccgcg agccggtcac ggacgcagca gaacagacaa aaacagcacc 1620
accgcgagcg gcgtcaaacac ccacaacata cacatcacgg acgaagcggg acaacttgcc 1680
cgaacaggca ggaactgcaca agaaacggaa gcgcgtatct acaccggcat cgacacggaa 1740
actcgggatc aacactcagg ccactcgaaa aacagcttcg ac
1782

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<210> 1833
 <211> 593
 <212> PRT
 <213> *Neisseria meningitidis*

<220>
 <221> misc_feature
 <222> (1)...(593)
 <223> Xaa is any Amino Acid

<400> 1833
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			20					25					30		
Ile	Ser	Asp	Lys	Gly	Ile	Val	Leu	Lys	Ala	Gly	His	Asp	Ile	Asp	Ile
			35				40					45			
Ser	Thr	Ala	His	Asn	Arg	Tyr	Thr	Gly	Asn	Glu	Tyr	His	Glu	Ser	Xaa
			50				55					60			
Xaa	Ser	Gly	Val	Met	Gly	Thr	Gly	Gly	Leu	Gly	Phe	Thr	Ile	Gly	Asn
			65				70					75			80
Arg	Lys	Thr	Thr	Asp	Asp	Thr	Asp	Arg	Thr	Asn	Ile	Val	His	Thr	Gly
				85					90					95	
Ser	Ile	Ile	Gly	Ser	Leu	Asn	Gly	Asp	Thr	Val	Thr	Val	Ala	Gly	Asn
			100					105					110		
Arg	Tyr	Arg	Gln	Thr	Gly	Ser	Thr	Val	Ser	Ser	Pro	Glu	Gly	Arg	Asn
			115				120						125		
Thr	Val	Thr	Ala	Lys	Xaa	Ile	Asp	Val	Glu	Phe	Ala	Asn	Asn	Arg	Tyr
			130				135					140			
Ala	Thr	Asp	Tyr	Ala	His	Thr	Gln	Glu	Gln	Lys	Gly	Leu	Thr	Val	Ala
			145				150					155			160
Leu	Asn	Val	Pro	Val	Val	Gln	Ala	Ala	Gln	Asn	Phe	Ile	Gln	Ala	Ala
			165					170					175		
Gln	Asn	Val	Gly	Lys	Ser	Lys	Asn	Lys	Arg	Val	Asn	Ala	Met	Ala	Ala
			180					185					190		
Ala	Asn	Ala	Ala	Trp	Gln	Ser	Tyr	Gln	Ala	Thr	Gln	Gln	Met	Gln	Gln
			195				200						205		
Phe	Ala	Pro	Ser	Ser	Ser	Ala	Gly	Gln	Gly	Gln	Asn	Tyr	Asn	Gln	Ser
			210				215					220			
Pro	Ser	Ile	Ser	Val	Ser	Ile	Xaa	Tyr	Gly	Glu	Gln	Lys	Ser	Arg	Asn
			225				230					235			240
Glu	Gln	Lys	Arg	His	Tyr	Thr	Glu	Ala	Ala	Ala	Ser	Gln	Ile	Ile	Gly
				245					250					255	
Lys	Gly	Gln	Thr	Thr	Leu	Ala	Ala	Thr	Gly	Ser	Gly	Glu	Gln	Ser	Asn
			260					265					270		
Ile	Asn	Ile	Thr	Gly	Ser	Asp	Val	Ile	Gly	His	Ala	Gly	Thr	Xaa	Leu
			275				280					285			
Ile	Ala	Asp	Asn	His	Ile	Arg	Leu	Gln	Ser	Ala	Lys	Gln	Asp	Gly	Ser
			290				295					300			
Glu	Gln	Ser	Lys	Asn	Lys	Ser	Ser	Gly	Trp	Asn	Ala	Gly	Val	Arg	Xaa

305		310		315		320
Lys Ile Gly Asn Gly	Ile Arg Phe Gly	Ile Thr Ala Gly	Gly Asn Ile			
	325		330			335
Gly Lys Gly Lys Glu	Gln Gly Gly Ser	Thr Thr His Arg	His Thr His			
	340		345			350
Val Gly Ser Thr Thr	Gly Lys Thr Thr	Ile Arg Ser Gly	Gly Asp Thr			
	355		360			365
Thr Leu Lys Gly Val	Gln Leu Ile Gly	Lys Gly Ile Gln	Ala Asp Thr			
	370		375			380
Arg Asn Leu His Ile	Glu Ser Val Gln	Asp Thr Glu Thr	Tyr Gln Ser			
	385		390			395
Lys Gln Gln Asn Gly	Asn Val Gln Val	Thr Val Gly Tyr	Gly Phe Ser			
	405		410			415
Ala Ser Gly Ser Tyr	Arg Gln Ser Lys	Val Lys Ala Asp	His Ala Ser			
	420		425			430
Val Thr Gly Gln Ser	Gly Ile Tyr Ala	Gly Glu Asp Gly	Tyr Gln Ile			
	435		440			445
Lys Val Arg Asp Asn	Thr Asp Leu Lys	Gly Gly Ile Ile	Thr Ser Ser			
	450		455			460
Gln Ser Ala Glu Asp	Lys Gly Lys Asn	Leu Phe Gln	Thr Ala Thr			
	465		470			475
Thr Ala Ser Asp Ile	Gln Asn His Ser	Arg Tyr Glu Gly	Arg Ser Phe			
	485		490			495
Gly Ile Gly Gly Ser	Phe Asp Leu Asn	Gly Gly Trp Asp	Gly Thr Val			
	500		505			510
Thr Asp Lys Gln Gly	Arg Pro Thr Asp	Arg Ile Ser Pro	Ala Ala Gly			
	515		520			525
Tyr Gly Ser Asp Gly	Asp Ser Lys Asn	Ser Thr Thr Arg	Ser Gly Val			
	530		535			540
Asn Thr His Asn Ile	His Ile Thr Asp	Glu Ala Gly Gln	Leu Ala Arg			
	545		550			555
Thr Gly Arg Thr Ala	Lys Glu Thr Glu	Ala Arg Ile Tyr	Thr Gly Ile			
	565		570			575
Asp Thr Glu Thr Ala	Asp Gln His Ser	Gly His Leu Lys	Asn Ser Phe			
	580		585			590

Asp

<210> 1834
 <211> 390
 <212> DNA
 <213> *Neisseria meningitidis*

<400> 1834
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 ttggacaaaag cggcgggaaaa cctcgggtccg gcgggcaaaag cggcgggtcaa cgcactgggc 120
 ggtgcggcca tcggctatgc aactgggtggg agtgggtggg ctgtgggtggg tgcgaatgta 180
 gattggaaca ataggcagct gcatccgaaa gaaatggcgt tggccgacaa atatgccgaa 240
 gccctcaagc gcgaagttag aaaaacgcgaa ggcagaaaaa tcagcagcca agaagcggca 300
 atgagaatcc gcaggcagat atgcgttggg tggacaaaag ttcccaagac ggctataccg 360
 accaaaagcgt catatccctt atcgggaatga 390

<210> 1835
 <211> 129
 <212> PRT
 <213> *Neisseria meningitidis*

<400> 1835
 Thr Thr Gly Ser Leu Gly Gly Ile Leu Ala Gly Gly Gly Thr Ser Leu
 5 10 15
 Ala Ala Pro Tyr Leu Asp Lys Ala Ala Glu Asn Leu Gly Pro Ala Gly
 20 25 30
 Lys Ala Ala Val Asn Ala Leu Gly Gly Ala Ala Ile Gly Tyr Ala Thr
 35 40 45
 Gly Gly Ser Gly Gly Ala Val Val Gly Ala Asn Val Asp Trp Asn Asn
 50 55 60
 Arg Gln Leu His Pro Lys Glu Met Ala Leu Ala Asp Lys Tyr Ala Glu
 65 70 75 80
 Ala Leu Lys Arg Glu Val Glu Lys Arg Glu Gly Arg Lys Ile Ser Ser
 85 90 95
 Gln Glu Ala Ala Met Arg Ile Arg Arg Gln Ile Cys Val Gly Trp Thr
 100 105 110
 Lys Val Pro Lys Thr Ala Ile Pro Thr Lys Ala Ser Tyr Pro Leu Ser
 115 120 125
 Glu

<210> 1836
 <211> 960
 <212> DNA
 <213> *Neisseria meningitidis*

<400> 1836
 caatgccgtc tgaaaagctc acaattttac agacggcatt tggatatcaa gtacatatat 60
 agattcccta tatactgccc agrkcgctgc gtgggtgaag acacccccta cgcttgctat 120

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ttgraacagc tccaagtcac caaagacgtc aactggaacc aggtacwact ggcgtaacac 180
aaatggggact ataaacagga aggccttaacc ggagccggag cagcgattat tgcgctggct 240
gttaccgtgg ttactcgagg cgccgggagcc ggagccgcac tgggcttaaa cggcgccgcc 300
gcagcgccaa ccgatgcgcg attcgccctcg ctggccagcc aggcctccgt atcgctcatc 360
aacaacaaag gcaatatacg taacacccctg aaagagctgg gcagaagcag caccggtgaa 420
aatctgatgg ttgcgcgtgc taccgcaggc gtacgcgaca aaatcggtgc ttcggcactg 480
aacaatgtca gcgataagca gtggatcaac aacctgaccg tcaacctggc caatgcgggc 540
agtgcgcgac tgattataac cgctgtcaac gcggcgagcc tgaagaacaa tctggaagcg 600
aatatccttg cggcttttgt gaatactgcg catggagaag cagccagtaa aatcaaacag 660
ttggatcagc actacattac ccacaagatt gcccatgcca tagcgggctg tcgggctgcg 720
gcggcgaaat agggcaagtg tcaggatggg gcgatagggt cggctgtggg cgagatagtc 780
ggggaggcct tgacaaacgg caaaaatcct gacactttga cagctaaaga acgcgaacag 840
atattggcat acagcaaact ggttgcgggt acggtaagcg gtgtggtcgg cggcgatgta 900
aatgcggcgg cgaatgcggc tgaggtagcg gtgaaaaata atcagcttag cgacaaatga 960

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<210> 1837
<211> 319
<212> PRT
<213> Neisseria meningitidis

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<220>
<221> misc_feature
<222> (1)...(319)
<223> Xaa is any Amino Acid

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<400> 1837
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      5                                10                                15

Lys Tyr Ile Tyr Arg Phe Pro Ile Tyr Cys Pro Xaa Ala Cys Val Ala
      20                                25                                30

Glu Asp Thr Pro Tyr Ala Cys Tyr Leu Xaa Gln Leu Gln Val Thr Lys
      35                                40                                45

Asp Val Asn Trp Asn Gln Val Xaa Leu Ala Tyr Asp Lys Trp Asp Tyr
      50                                55                                60

Lys Gln Glu Gly Leu Thr Gly Ala Gly Ala Ala Ile Ile Ala Leu Ala
      65                                70                                75                                80

Val Thr Val Val Thr Ala Gly Ala Gly Ala Gly Ala Ala Leu Gly Leu
      85                                90                                95

Asn Gly Ala Ala Ala Ala Ala Thr Asp Ala Ala Phe Ala Ser Leu Ala
      100                                105                                110

Ser Gln Ala Ser Val Ser Leu Ile Asn Asn Lys Gly Asn Ile Gly Asn
      115                                120                                125

Thr Leu Lys Glu Leu Gly Arg Ser Ser Thr Val Lys Asn Leu Met Val
      130                                135                                140

Ala Val Ala Thr Ala Gly Val Ala Asp Lys Ile Gly Ala Ser Ala Leu
      145                                150                                155                                160

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Asn Asn Val Ser Asp Lys Gln Trp Ile Asn Asn Leu Thr Val Asn Leu
165 170 175

Ala Asn Ala Gly Ser Ala Ala Leu Ile Asn Thr Ala Val Asn Gly Gly
180 185 190

Ser Leu Lys Asp Asn Leu Glu Ala Asn Ile Leu Ala Ala Leu Val Asn
195 200 205

Thr Ala His Gly Glu Ala Ala Ser Lys Ile Lys Gln Leu Asp Gln His
210 215 220

Tyr Ile Thr His Lys Ile Ala His Ala Ile Ala Gly Cys Ala Ala Ala
225 230 235 240

Ala Ala Asn Lys Gly Lys Cys Gln Asp Gly Ala Ile Gly Ala Ala Val
245 250 255

Gly Glu Ile Val Gly Glu Ala Leu Thr Asn Gly Lys Asn Pro Asp Thr
260 265 270

Leu Thr Ala Lys Glu Arg Glu Gln Ile Leu Ala Tyr Ser Lys Leu Val
275 280 285

Ala Gly Thr Val Ser Gly Val Val Gly Gly Asp Val Asn Ala Ala Ala
290 295 300

Asn Ala Ala Glu Val Ala Val Lys Asn Asn Gln Leu Ser Asp Lys
305 310 315

<210> 1838

<211> 1860

<212> DNA

<213> *Neisseria meningitidis*

<400> 1838

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ccctacgctt gctatttgaa acagctccaa gtcaccaaag acgtcaactg gaaccaggta 120
caactggcgt acgacaaatg ggactataaa cagggaaggct taaccggagc cggagcagcg 180
attattgcgc tggctgtttac cgtggttact gcggggcgcg gagccggagc cgcactgggc 240
ttaaacggcg cggccgcagc ggcaaccgat gccgcattcg cctcgctggc cagccaggct 300
tccgtatcgc tcatcaacaa caaaggcaat atcggttaaca cctgaaaga gctgggcaga 360
agcagcagcg tgaaaaatct gatggttgcg gtcgctacgc caggcgtagc cgacaaaatc 420
ggtgcttcgg cactgaacaa tgtcagcgat aagcagtgga tcaacaacct gaccgtcaac 480
ctggccaatg cgggcagtcg cgcactgatt aataccgctg tcaacggcgg cagcctgaaa 540
gacaatctgg aagcgaatat ccttgcggct ttggtgaata ctgcgcattg agaagcagcc 600
agtaaaatca aacagtttga tcagcactac attaccacaca agattgccca tgccatagcg 660
ggctgtgcgg tgcggcgcg gaataaggcg aagtgtcagg atggtgcgat aggtgcggct 720
gtggcgagga tagtcgggga ggctttgaca aacggcaaaa atcctgacac tttagacagc 780
aaagaacgcg aacagatttt ggcatcacgc aaactggttg ccggtacggt aagcgggtgtg 840
gtcggcgcg atgtaaaatg ggcggcggaat gcggctgagg tagcgggtgaa aaataatcag 900
cttagcgaca aagaggttag agaatttga aacgaaatga ctgcattgcg caaacagaat 960
aatcctcaac tgtgcagaaa aaatactgta aaaaagtatc aaaatgttgc tgataaaaaga 1020
cattctctgt cgattgcaat atgtacggat atattccgta gtactgaatg tagaacaatc 1080
agaaaacaac atttgatcga tagtagaagc ctctattcat cttgggaagc aggtctaatt 1140
ggtaaagatg atgaatggta taaattatct agcaaatctt acaccaagc agatttggct 1200

ttaacagtctt	atcattttaa	tactgtgtgt	aaactctggc	tccaatcggg	catatacaag	1260
ctctttatcg	aatggatgtc	gcacgaaggt	tatacattca	tctcaggagt	taattctaga	1320
ttoattccaa	taccagaagtc	gttgttaaaa	ataacactta	cttattactaa	tgtcacaatc	1380
cogggaagca	tccagtttga	tacaacattc	aaagaacata	tgggcaatgc	tgaagtgttt	1440
agtcaaaaac	agggcattaa	aggagcccat	aacgcgacca	attttattgc	agaactaaat	1500
tcaacgaagc	gacgcgtaac	atctgaaacc	caactccta	ttggaagcat	taccogaatt	1560
aaatatgaga	tgtctgttaa	acagcagaca	ggtaaacata	attggtgatt	taaggaaatt	1620
tcaagttaaa	aaactgttta	taattctaaa	aaattttctg	atgataaaat	actccaagat	1680
gctcaaaatg	ctgtcttcca	aggatatcca	aaagcctcta	aaattgtcca	aaatgaagaa	1740
actaaatcaa	tatctgaaag	aaaaaatgtc	attcaatttt	cgaaacacct	tgcaggaatc	1800
aaatttgaat	catcttttga	ttaaaattga	ggaagaatta	caagaattca	cccgagaata	1860

His Tyr Ile Thr His Lys Ile Ala His Ala Ile Ala Gly Cys Ala Ala
 210 215 220
 Ala Ala Ala Asn Lys Gly Lys Cys Gln Asp Gly Ala Ile Gly Ala Ala
 225 230 235 240
 Val Gly Glu Ile Val Gly Glu Ala Leu Thr Asn Gly Lys Asn Pro Asp
 245 250 255
 Thr Leu Thr Ala Lys Glu Arg Glu Gln Ile Leu Ala Tyr Ser Lys Leu
 260 265 270
 Val Ala Gly Thr Val Ser Gly Val Val Gly Gly Asp Val Asn Ala Ala
 275 280 285
 Ala Asn Ala Ala Glu Val Ala Val Lys Asn Asn Gln Leu Ser Asp Lys
 290 295 300
 Glu Gly Arg Glu Phe Asp Asn Glu Met Thr Ala Cys Ala Lys Gln Asn
 305 310 315 320
 Asn Pro Gln Leu Cys Arg Lys Asn Thr Val Lys Lys Tyr Gln Asn Val
 325 330 335
 Ala Asp Lys Arg Leu Ala Ala Ser Ile Ala Ile Cys Thr Asp Ile Ser
 340 345 350
 Arg Ser Thr Glu Cys Arg Thr Ile Arg Lys Gln His Leu Ile Asp Ser
 355 360 365
 Arg Ser Leu His Ser Ser Trp Glu Ala Gly Leu Ile Gly Lys Asp Asp
 370 375 380
 Glu Trp Tyr Lys Leu Phe Ser Lys Ser Tyr Thr Gln Ala Asp Leu Ala
 385 390 395 400
 Leu Gln Ser Tyr His Leu Asn Thr Ala Ala Lys Ser Trp Leu Gln Ser
 405 410 415
 Gly Asn Thr Lys Pro Leu Ser Glu Trp Met Ser Asp Gln Gly Tyr Thr
 420 425 430
 Leu Ile Ser Gly Val Asn Pro Arg Phe Ile Pro Ile Pro Arg Gly Phe
 435 440 445
 Val Lys Gln Asn Thr Pro Ile Thr Asn Val Lys Tyr Pro Glu Gly Ile
 450 455 460
 Ser Phe Asp Thr Asn Leu Lys Arg His Leu Ala Asn Ala Asp Gly Phe
 465 470 475 480
 Ser Gln Lys Gln Gly Ile Lys Gly Ala His Asn Arg Thr Asn Phe Met
 485 490 495
 Ala Glu Leu Asn Ser Arg Gly Gly Arg Val Lys Ser Glu Thr Gln Thr
 500 505 510

Asp Ile Glu Gly Ile Thr Arg Ile Lys Tyr Glu Ile Pro Thr Leu Asp
 515 520 525
 Arg Thr Gly Lys Pro Asp Gly Gly Phe Lys Glu Ile Ser Ser Ile Lys
 530 535 540
 Thr Val Tyr Asn Pro Lys Lys Phe Ser Asp Asp Lys Ile Leu Gln Met
 545 550 555 560
 Ala Gln Asn Ala Ala Ser Gln Gly Tyr Ser Lys Ala Ser Lys Ile Ala
 565 570 575
 Gln Asn Glu Arg Thr Lys Ser Ile Ser Glu Arg Lys Asn Val Ile Gln
 580 585 590
 Phe Ser Glu Thr Phe Asp Gly Ile Lys Phe Arg Ser Tyr Phe Asp Val
 595 600 605
 Asn Thr Gly Arg Ile Thr Asn Ile His Pro Glu
 610 615

<210> 1840

<211> 1788

<212> DNA

<213> *Neisseria meningitidis*

<220>

<221> misc_feature

<222> (1)...(1788)

<223> n = A,T,C or G

<400> 1840

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 gccgttaccc tgggtcaacct aggcgcaggga accggagccg tattgggatt aaacgggtgcg 180
 nccgcccgcc caaccgatgc agcattcgcc tctttggcca gccagggttc cgtatcggttc 240
 atcaacaaca aaggcgatgt cggcaaaaacc ctgaaaagagc tgggcagaag cagcacggtg 300
 aaaaatctgg tggttgcccgc cgctaccgca ggctgagccg acaaaatcgg cgcttcggca 360
 ctgancaatg tcaaggataa gcagtggtgc aacaacctga ccgtcaacct agccaatgcg 420
 ggcagtgccg cactgattaa taccgctgtc aacggcgcca gctgaaaga cantctggaa 480
 gcgaatatcc ttgcgggttt ggtcaatacc gcgcattggag aagcagccag taaaatcaaa 540
 cagttggatc agcactacat agtccacaag attgccatg ccatagcggg ctgtgcggca 600
 gccggcgcca ataggggcaa gtgtcaggat ggtgcgatag gtgcggctgt gggcgagata 660
 gtgcggggag ctttgacaaa cggcaaaaat cctgacact tgacagctaa agaagcgaa 720
 cagattttgg catcacgcaa actggttgcg ggtacggtaa gcggtgtgtg cggcgcgcat 780
 gtaaatcgcc cgccgaatgc ggctgaggtg gcggtgaaaa ataactcagct tagcgacnaa 840
 gagggtagag aatttgataa cgaatgact gcattgcgcca aacagaatan tctcaactg 900
 tgcagaaaaa atactgtaaa aaagtatcaa aatgttgctg ataaaaagact tgcgtcttcg 960
 attgcaatat ttgacggata atcccgtagt actgaatgta gaacatcag aaaaacaact 1020
 ttgatcgata ttagaagcct tcattcatct tgggaagcag gtctaattgg taaagatgat 1080
 gaattgtata aattattcag caaatcttac acccaagcag atttggcttt acagtcttat 1140
 catttgaata ctgctgctaa atcttggtt caatcgggca atacaagcc tttatccgaa 1200
 tggatgtccg caaagggtta tacacttatt tcaggagtta atcctagatt cattccaata 1260
 ccaatagggt ttgtaaaaa aaatacacct attactaatg tcaaataccg ggaagcgcat 1320
 agtttcgata caaacctana aagacatctg gcaaatgctg atggttttag tcaagaacag 1380
 ggcattaaag gagccataa ccgcaccaat ntatggcag aactaaattc acgaggagga 1440

Gln Asp Gly Ala Ile Gly Ala Ala Val Gly Glu Ile Val Gly Glu Ala
 210 215 220
 Leu Thr Asn Gly Lys Asn Pro Asp Thr Leu Thr Ala Lys Glu Arg Glu
 225 230 235 240
 Gln Ile Leu Ala Tyr Ser Lys Leu Val Ala Gly Thr Val Ser Gly Val
 245 250 255
 Val Gly Gly Asp Val Asn Ala Ala Ala Asn Ala Ala Glu Val Ala Val
 260 265 270
 Lys Asn Asn Gln Leu Ser Asp Xaa Glu Gly Arg Glu Phe Asp Asn Glu
 275 280 285
 Met Thr Ala Cys Ala Lys Gln Asn Xaa Pro Gln Leu Cys Arg Lys Asn
 290 295 300
 Thr Val Lys Lys Tyr Gln Asn Val Ala Asp Lys Arg Leu Ala Ala Ser
 305 310 315 320
 Ile Ala Ile Cys Thr Asp Ile Ser Arg Ser Thr Glu Cys Arg Thr Ile
 325 330 335
 Arg Lys Gln His Leu Ile Asp Ser Arg Ser Leu His Ser Ser Trp Glu
 340 345 350
 Ala Gly Leu Ile Gly Lys Asp Asp Glu Trp Tyr Lys Leu Phe Ser Lys
 355 360 365
 Ser Tyr Thr Gln Ala Asp Leu Ala Leu Gln Ser Tyr His Leu Asn Thr
 370 375 380
 Ala Ala Lys Ser Trp Leu Gln Ser Gly Asn Thr Lys Pro Leu Ser Glu
 385 390 395 400
 Trp Met Ser Asp Gln Gly Tyr Thr Leu Ile Ser Gly Val Asn Pro Arg
 405 410 415
 Phe Ile Pro Ile Pro Arg Gly Phe Val Lys Gln Asn Thr Pro Ile Thr
 420 425 430
 Asn Val Lys Tyr Pro Glu Gly Ile Ser Phe Asp Thr Asn Leu Xaa Arg
 435 440 445
 His Leu Ala Asn Ala Asp Gly Phe Ser Gln Glu Gln Gly Ile Lys Gly
 450 455 460
 Ala His Asn Arg Thr Asn Xaa Met Ala Glu Leu Asn Ser Arg Gly Gly
 465 470 475 480
 Xaa Val Lys Ser Glu Thr Xaa Thr Asp Ile Glu Gly Ile Thr Arg Ile
 485 490 495
 Lys Tyr Glu Ile Pro Thr Leu Asp Arg Thr Gly Lys Pro Asp Gly Gly
 500 505 510

Phe Lys Glu Ile Ser Ser Ile Lys Thr Val Tyr Asn Pro Lys Xaa Phe
 515 520 525
 Xaa Asp Asp Lys Ile Leu Gln Met Ala Gln Xaa Ala Xaa Ser Gln Gly
 530 535 540
 Tyr Ser Lys Ala Ser Lys Ile Ala Gln Asn Glu Arg Thr Lys Ser Ile
 545 550 555 560
 Ser Glu Arg Lys Asn Val Ile Gln Phe Ser Glu Thr Phe Asp Gly Ile
 565 570 575
 Lys Phe Arg Xaa Tyr Xaa Asp Val Asn Thr Gly Arg Ile Thr Asn Ile
 580 585 590
 His Pro Glu
 595

<210> 1842
 <211> 453
 <212> DNA
 <213> *Neisseria meningitidis*

<400> 1842
 atggcaatca ttacattgta ttattctgtc aatgggtatt taaatgtatg tgcaaaagca 60
 aaaaatattc aagttagttgc caataataag aatatgggtc tttttgggtt ttggsmrgc 120
 atcatcggtc gtccaaccaa tgccatgtct cccatattgt taatattttt gcttagcgaa 180
 acagaaaaata aaaatcgtat cgtaaaatca agcaatctat gctatctttt ggcgaaaatt 240
 gttcaaatat atatgctaag agaccagtat tggttattaa ataagagtga atacgdttta 300
 atatttttat tgcctgtatt gtcgtttatt ggattgtatg ttggaattcg gttaaggact 360
 aagattagcc caaatttttt taaaatgtta atttttattg ttttattggt attggtctctg 420
 aaaatcggtc attcggtttt aatcaaaact taa 453

<210> 1843
 <211> 150
 <212> PRT
 <213> *Neisseria meningitidis*

<220>
 <221> misc_feature
 <222> (1)...(150)
 <223> Xaa is any Amino Acid

<400> 1843
 Met Ala Ile Ile Thr Leu Tyr Tyr Ser Val Asn Gly Ile Leu Asn Val
 5 10 15
 Cys Ala Lys Ala Lys Asn Ile Gln Val Val Ala Asn Asn Lys Asn Met
 20 25 30
 Val Leu Phe Gly Phe Leu Xaa Xaa Ile Ile Gly Gly Ser Thr Asn Ala
 35 40 45
 Met Ser Pro Ile Leu Leu Ile Phe Leu Leu Ser Glu Thr Glu Asn Lys

50 55 60

Asn Arg Ile Val Lys Ser Ser Asn Leu Cys Tyr Leu Leu Ala Lys Ile
65 70 75 80

Val Gln Ile Tyr Met Leu Arg Asp Gln Tyr Trp Leu Leu Asn Lys Ser
85 90 95

Glu Tyr Xaa Leu Ile Phe Leu Leu Ser Val Leu Ser Val Ile Gly Leu
100 105 110

Tyr Val Gly Ile Arg Leu Arg Thr Lys Ile Ser Pro Asn Phe Phe Lys
115 120 125

Met Leu Ile Phe Ile Val Leu Leu Val Leu Ala Leu Lys Ile Gly His
130 135 140

Ser Gly Leu Ile Lys Leu
145 150

<210> 1844
<211> 768
<212> DNA
<213> *Neisseria meningitidis*

<400> 1844

atgcaagaaa taatgcaatc tatcggtttt gttgctgcgc caatactgca cggaattaca 60
ggcatgggat ttccgatgct cggtacaacc gcattggcgt ttatcatgcc attgtctaag 120
gttgttgctt tgggtggcatt accaagccctg ttaatgagct tggttggtct atgcagcaat 180
aacaataaagg gtttttggca agagattggt tattatttaa aaacctataa attgcttgct 240
atcgccagcg tcgttggcag cattttgggg gtgaagttgc ttttgatact tccagttgct 300
tggtctgttt taactgatgc aatcattaca ttgtattatt ctgtcaatgg tattttaaat 360
gtatgtgcaa aagcaaaaaa tattcaagta gttgccaata ataagaatat ggttcttttt 420
gggttttttg caggcatcat cggcgggttca accaatgcca tgtctcccat attgttaata 480
tttttgctta gcgaacacaga aaataaaaaat cgtatcgtaa aatcaagcaa tctatgctat 540
cttttggcca aaattgttca aatataatg ctaagagacc agtattggtt attaaataag 600
agtgaatcag gtttaatat tttactgtcc gttattgtctg ttattggatt gtagttgga 660
attcggttaa ggactaagat tagcccaaat ttttttaaaa tgtaaatttt tattgtttta 720
ttggtattgg ctctgaaaaa cgggcattcg ggttaataca aactttta 768

<210> 1845
<211> 255
<212> PRT
<213> *Neisseria meningitidis*

<400> 1845

Met Gln Glu Ile Met Gln Ser Ile Val Phe Val Ala Ala Ala Ile Leu
5 10 15

His Gly Ile Thr Gly Met Gly Phe Pro Met Leu Gly Thr Thr Ala Leu
20 25 30

Ala Phe Ile Met Pro Leu Ser Lys Val Val Ala Leu Val Ala Leu Pro
35 40 45

Ser Leu Leu Met Ser Leu Leu Val Leu Cys Ser Asn Asn Lys Lys Gly
 50 55 60
 Phe Trp Gln Glu Ile Val Tyr Tyr Leu Lys Thr Tyr Lys Leu Leu Ala
 65 70 75 80
 Ile Gly Ser Val Val Gly Ser Ile Leu Gly Val Lys Leu Leu Leu Ile
 85 90 95
 Leu Pro Val Ser Trp Leu Leu Leu Leu Met Ala Ile Ile Thr Leu Tyr
 100 105 110
 Tyr Ser Val Asn Gly Ile Leu Asn Val Cys Ala Lys Ala Lys Asn Ile
 115 120 125
 Gln Val Val Ala Asn Asn Lys Asn Met Val Leu Phe Gly Phe Leu Ala
 130 135 140
 Gly Ile Ile Gly Gly Ser Thr Asn Ala Met Ser Pro Ile Leu Leu Ile
 145 150 155 160
 Phe Leu Leu Ser Glu Thr Glu Asn Lys Asn Arg Ile Val Lys Ser Ser
 165 170 175
 Asn Leu Cys Tyr Leu Leu Ala Lys Ile Val Gln Ile Tyr Met Leu Arg
 180 185 190
 Asp Gln Tyr Trp Leu Leu Asn Lys Ser Glu Tyr Gly Leu Ile Phe Leu
 195 200 205
 Leu Ser Val Leu Ser Val Ile Gly Leu Tyr Val Gly Ile Arg Leu Arg
 210 215 220
 Thr Lys Ile Ser Pro Asn Phe Phe Lys Met Leu Ile Phe Ile Val Leu
 225 230 235 240
 Leu Val Leu Ala Leu Lys Ile Gly His Ser Gly Leu Ile Lys Leu
 245 250 255

<210> 1846

<211> 768

<212> DNA

<213> *Neisseria meningitidis*

<400> 1846

atgcaagaaa taatgcaatc tatcggtttt gttgctgccc caatactgca cggaattaca 60
 ggcatgggat ttccgatgct cgggtacaacc gcattggctt ttatcatgcc attgtctaag 120
 gttgttgccct tgggtggcatt accaagccctg ttaatgagct tgtttggttc atgcagcaat 180
 aacaaaaagg gtttttggca agagattggt tattattttaa aaacctataa attgcttgct 240
 atcggcagcg tcgttggcag cattttgggg gtgaagtgtc ttttgatact tccagtgtct 300
 tggtctgctt tactgatggc aatcattaca ttgtattatt ctgtcaatgg tattttaaat 360
 gtatgtgcaa aagcaaaaaa tattcaagta gttgccaata ataagaatat ggttcttttt 420
 gggtttttgg caggcatcat cggcgggttca accaatgccaa tgtctcccat attgttaata 480
 tttttgctta gcgaacaga gaataaaaaat cgtatcgcaa aatcaagcaa tctatgctat 540
 cttttgctaa aaattgttca aatataatat ctaagagacc agtattggtt attaaataag 600
 agtgaatacg gtttaatat tttactgtcc gtattgtctg ttattggatt gtatgttga 660

attcggttaa ggactaagat tagcccaaat ttttttaaaa tgttaatttt tatgtgttta 720
 ttgtattgg ctctgaaaaa cgggtattca ggtttaatca aactttaa 768

<210> 1847
 <211> 255
 <212> PRT
 <213> *Neisseria meningitidis*

<400> 1847
 Met Gln Glu Ile Met Gln Ser Ile Val Phe Val Ala Ala Ala Ile Leu
 5 10 15
 His Gly Ile Thr Gly Met Gly Phe Pro Met Leu Gly Thr Thr Ala Leu
 20 25 30
 Ala Phe Ile Met Pro Leu Ser Lys Val Val Ala Leu Val Ala Leu Pro
 35 40 45
 Ser Leu Leu Met Ser Leu Leu Val Leu Cys Ser Asn Asn Lys Lys Gly
 50 55 60
 Phe Trp Gln Glu Ile Val Tyr Tyr Leu Lys Thr Tyr Lys Leu Leu Ala
 65 70 75 80
 Ile Gly Ser Val Val Gly Ser Ile Leu Gly Val Lys Leu Leu Leu Ile
 85 90 95
 Leu Pro Val Ser Trp Leu Leu Leu Leu Met Ala Ile Ile Thr Leu Tyr
 100 105 110
 Tyr Ser Val Asn Gly Ile Leu Asn Val Cys Ala Lys Ala Lys Asn Ile
 115 120 125
 Gln Val Val Ala Asn Asn Lys Asn Met Val Leu Phe Gly Phe Leu Ala
 130 135 140
 Gly Ile Ile Gly Gly Ser Thr Asn Ala Met Ser Pro Ile Leu Leu Ile
 145 150 155 160
 Phe Leu Leu Ser Glu Thr Glu Asn Lys Asn Arg Ile Ala Lys Ser Ser
 165 170 175
 Asn Leu Cys Tyr Leu Leu Ala Lys Ile Val Gln Ile Tyr Met Leu Arg
 180 185 190
 Asp Gln Tyr Trp Leu Leu Asn Lys Ser Glu Tyr Gly Leu Ile Phe Leu
 195 200 205
 Leu Ser Val Leu Ser Val Ile Gly Leu Tyr Val Gly Ile Arg Leu Arg
 210 215 220
 Thr Lys Ile Ser Pro Asn Phe Phe Lys Met Leu Ile Phe Ile Val Leu
 225 230 235 240
 Leu Val Leu Ala Leu Lys Ile Gly Tyr Ser Gly Leu Ile Lys Leu
 245 250 255

<210> 1848
 <211> 516
 <212> DNA
 <213> *Neisseria meningitidis*

<400> 1848
 atgagacata tgaaaaataca aaattatttta ctagtatttta tagtttttaca tatagccttg 60
 atagtaatta atatagtggtt tgggtattttt gttttttctat ttgattttttt tgcgttttttg 120
 tttttttgcaa acgctctttct tgcgtgtaaat ttattattttt tagaaaaaaaac cataaaaaaac 180
 aaattatttgt tttttattgcc gattttctatt attatatgga tggtaattca tattagtagtg 240
 ataaatataa aatttttataa atttgagcat caaataaaag aacaaaatat atcctcgatt 300
 actgggggtga taaaaccaca tgatagtttat aattatgtttt atgactcaaa tggatatgct 360
 aaattaaaag ataactatag atatggtagg gtaattagag aaacacctta tattgatgta 420
 gttgcactcg atgttaaaaa taaatccata agattaagct tggtttgttg tattcattca 480
 tatgctccat gtgccaattt tataaaaattt gtcagg 516

<210> 1849
 <211> 172
 <212> PRT
 <213> *Neisseria meningitidis*

<400> 1849
 Met Arg His Met Lys Ile Gln Asn Tyr Leu Leu Val Phe Ile Val Leu
 5 10 15
 His Ile Ala Leu Ile Val Ile Asn Ile Val Phe Gly Tyr Phe Val Phe
 20 25 30
 Leu Phe Asp Phe Phe Ala Phe Leu Phe Phe Ala Asn Val Phe Leu Ala
 35 40 45
 Val Asn Leu Leu Phe Leu Glu Lys Asn Ile Lys Asn Lys Leu Leu Phe
 50 55 60
 Leu Leu Pro Ile Ser Ile Ile Ile Trp Met Val Ile His Ile Ser Met
 65 70 75 80
 Ile Asn Ile Lys Phe Tyr Lys Phe Glu His Gln Ile Lys Glu Gln Asn
 85 90 95
 Ile Ser Ser Ile Thr Gly Val Ile Lys Pro His Asp Ser Tyr Asn Tyr
 100 105 110
 Val Tyr Asp Ser Asn Gly Tyr Ala Lys Leu Lys Asp Asn His Arg Tyr
 115 120 125
 Gly Arg Val Ile Arg Glu Thr Pro Tyr Ile Asp Val Val Ala Ser Asp
 130 135 140
 Val Lys Asn Lys Ser Ile Arg Leu Ser Leu Val Cys Gly Ile His Ser
 145 150 155 160
 Tyr Ala Pro Cys Ala Asn Phe Ile Lys Phe Val Arg
 165 170

<210> 1850
 <211> 729
 <212> DNA
 <213> *Neisseria meningitidis*

<400> 1850
 atgagacata tgaaaaataa aaattatttta ctagtatttta tagttttaca tatagccttg 60
 atagtaatta atatagtgtt tggttatttt gtttttctat ttgatttttt tgcgtttttg 120
 ttttttgcaa acgtctttct tgcgttaaat ttattatttt tagaaaaaaa cataaaaaac 180
 aaattattgt ttttattgcc gattttctatt attatatgga tggtaattca tattagtatg 240
 ataaatataa aattttataa atttgagcat caaataaagg aacaaaatat atcctcgatt 300
 actgggggtga taaaaccaca tgatagttat aattatgttt atgactcaaa tggatatgct 360
 aaattaaaag ataactatag atatggtagg gtaattagag aaacacctta tattgatgta 420
 gttgcatctg atgttaaaaa taaatccata agattaagct tggtttgggg tattcattca 480
 tatgctccat gtgccaattt tataaaaattt gcaaaaaaac ctgttaaaat ttatttttat 540
 aatcaacctc aaggagattt tatagataat gtaatatattg aaattaatga tggaaacaaa 600
 agtttgtagt tggtagataa gtataaaaca ttttttctta ttgaaaacag tgtttgtatc 660
 gtattaatta ttttatattt aaaatttaat ttgcttttat ataggacctta ctccaatgag 720
 ttggaatag 729

<210> 1851
 <211> 242
 <212> PRT
 <213> *Neisseria meningitidis*

<400> 1851
 Met Arg His Met Lys Asn Lys Asn Tyr Leu Leu Val Phe Ile Val Leu
 5 10 15
 His Ile Ala Leu Ile Val Ile Asn Ile Val Phe Gly Tyr Phe Val Phe
 20 25 30
 Leu Phe Asp Phe Phe Ala Phe Leu Phe Phe Ala Asn Val Phe Leu Ala
 35 40 45
 Val Asn Leu Leu Phe Leu Glu Lys Asn Ile Lys Asn Lys Leu Leu Phe
 50 55 60
 Leu Leu Pro Ile Ser Ile Ile Ile Trp Met Val Ile His Ile Ser Met
 65 70 75 80
 Ile Asn Ile Lys Phe Tyr Lys Phe Glu His Gln Ile Lys Glu Gln Asn
 85 90 95
 Ile Ser Ser Ile Thr Gly Val Ile Lys Pro His Asp Ser Tyr Asn Tyr
 100 105 110
 Val Tyr Asp Ser Asn Gly Tyr Ala Lys Leu Lys Asp Asn His Arg Tyr
 115 120 125
 Gly Arg Val Ile Arg Glu Thr Pro Tyr Ile Asp Val Val Ala Ser Asp
 130 135 140
 Val Lys Asn Lys Ser Ile Arg Leu Ser Leu Val Cys Gly Ile His Ser

50 55 60
 Leu Leu Pro Ile Ser Ile Ile Ile Trp Met Val Ile His Ile Ser Met
 65 70 75 80
 Ile Asn Ile Lys Phe Tyr Lys Phe Glu His Gln Ile Lys Glu Gln Asn
 85 90 95
 Ile Ser Ser Ile Thr Gly Val Ile Lys Pro His Asp Ser Tyr Asn Tyr
 100 105 110
 Val Tyr Asp Ser Asn Gly Tyr Ala Lys Leu Lys Asp Asn His Arg Tyr
 115 120 125
 Gly Arg Val Ile Arg Glu Thr Pro Tyr Ile Asp Val Val Ala Ser Asp
 130 135 140
 Val Lys Asn Lys Ser Ile Arg Leu Ser Leu Val Cys Gly Ile His Ser
 145 150 155 160
 Tyr Ala Pro Cys Ala Asn Phe Ile Lys Phe Ala Lys Lys Pro Val Lys
 165 170 175
 Ile Tyr Phe Tyr Asn Gln Pro Gln Gly Asp Phe Ile Asp Asn Val Ile
 180 185 190
 Phe Glu Ile Asn Asp Gly Lys Lys Ser Leu Tyr Leu Leu Asp Lys Tyr
 195 200 205
 Lys Thr Phe Phe Leu Ile Glu Asn Ser Val Cys Ile Val Leu Ile Ile
 210 215 220
 Leu Tyr Leu Lys Phe Asn Leu Leu Leu Tyr Arg Thr Tyr Phe Asn Glu
 225 230 235 240
 Leu Glu

 <210> 1854
 <211> 552
 <212> DNA
 <213> *Neisseria meningitidis*

 <400> 1854
 acccccaaca gcgtgaccgt cttgccgtct ttcggcggat tcgggcgtac cggcgcgacc 60
 atcaatgcag caggcggggt cggcatgact gccttttcga caacottaat ttccgtagcc 120
 gagggcgccg ttttagagct gcaggccgtg agagccaaag ccgtcaatgc aaccgcgcgt 180
 tgcattttta cggctcttgag taaggacatt ttcgatttcc tttttatttt ccgttttcag 240
 acggctgact tccgcctgta ttttcgccaa agccatgcgc acagcgtgcg ccttgacttc 300
 atatttaaaa gcttcgcgcg gtgccagttc cagttcgcgc gcatagtttt gagccgacaa 360
 cagcagggct tgcgccttgt cgcgctccat cttgtcgatg accgcctgca gcttcgcaaa 420
 tgccgacttg tagccttgat ggtgcgacac agccaagccc gtgcgcgacaa gcgcgataat 480
 ggcaatcggt tgccagtaat tcgccagcag tttcaagaga ttcattctcg acctcctgac 540
 gcttcacgct ga 552

<210> 1855

<211> 183
 <212> PRT
 <213> *Neisseria meningitidis*

<400> 1855
 Thr Pro Asn Ser Val Thr Val Leu Pro Ser Phe Gly Gly Phe Gly Arg
 5 10 15
 Thr Gly Ala Thr Ile Asn Ala Ala Gly Gly Val Gly Met Thr Ala Phe
 20 25 30
 Ser Thr Thr Leu Ile Ser Val Ala Glu Gly Ala Val Val Glu Leu Gln
 35 40 45
 Ala Val Arg Ala Lys Ala Val Asn Ala Thr Ala Ala Cys Ile Phe Thr
 50 55 60
 Val Leu Ser Lys Asp Ile Phe Asp Phe Leu Phe Ile Phe Arg Phe Gln
 65 70 75 80
 Thr Ala Asp Phe Arg Leu Tyr Phe Arg Gln Ser His Ala Asp Ser Val
 85 90 95
 Arg Leu Asp Phe Ile Phe Lys Ser Phe Arg Ala Cys Gln Phe Gln Phe
 100 105 110
 Ala Arg Ile Val Leu Ser Arg Gln Gln Gln Gly Leu Arg Leu Val Ala
 115 120 125
 Leu His Leu Val Asp Asp Arg Leu Gln Leu Arg Lys Cys Arg Leu Val
 130 135 140
 Ala Leu Met Val Arg His Ser Gln Ala Arg Ala Asp Lys Arg Asp Asn
 145 150 155 160
 Gly Asn Arg Leu Pro Val Ile Arg Gln Gln Phe His Glu Ile His Ser
 165 170 175
 Arg Pro Pro Asp Ala Ser Arg
 180

<210> 1856
 <211> 468
 <212> DNA
 <213> *Neisseria meningitidis*

<400> 1856
 atgactgcct ttctgacaac cttaatttcc gtagccgagg gcgcggttgt agagctgcag 60
 gccgtgagag ccaaagccgt caatgcaacc gccggttgca tttttacggt cttagtaag 120
 gacattttcg atttcctttt tattttccgt ttccagacgg ctgacttcgg cctgtttttt 180
 cgccaaagcc atgccgacag cgtgcgcctt gacttcatat tttttagctt ccgcgcgtgc 240
 cagttccagt tcgcgcgcac agttttgagc cgacaacagc aggggttcgc cctgttcgcg 300
 ctccattctg tcgatgaccg cctgctgctt cgcaaatgcc gacttgtagc cttagtggtg 360
 cgacacagcc aagcccgctc cgacaagcgc gataatggca atcggttgcg agttattcgc 420
 cagcagtttc acgagattca ttctgcacct cctgacgctt cacgctga 468

<210> 1857
 <211> 155
 <212> PRT
 <213> *Neisseria meningitidis*

<400> 1857
 Met Thr Ala Phe Ser Thr Thr Leu Ile Ser Val Ala Glu Gly Ala Val
 5 10 15
 Val Glu Leu Gln Ala Val Arg Ala Lys Ala Val Asn Ala Thr Ala Ala
 20 25 30
 Cys Ile Phe Thr Val Leu Ser Lys Asp Ile Phe Asp Phe Leu Phe Ile
 35 40 45
 Phe Arg Phe Gln Thr Ala Asp Phe Arg Leu Phe Phe Arg Gln Ser His
 50 55 60
 Ala Asp Ser Val Arg Leu Asp Phe Ile Phe Phe Ser Phe Arg Ala Cys
 65 70 75 80
 Gln Phe Gln Phe Ala Arg Ile Val Leu Ser Arg Gln Gln Gln Gly Leu
 85 90 95
 Arg Leu Val Ala Leu His Leu Val Asp Asp Arg Leu Leu Leu Arg Lys
 100 105 110
 Cys Arg Leu Val Ala Leu Met Val Arg His Ser Gln Ala Arg Ala Asp
 115 120 125
 Lys Arg Asp Asn Gly Asn Arg Leu Pro Val Ile Arg Gln Gln Phe His
 130 135 140
 Glu Ile His Ser Arg Pro Pro Asp Ala Ser Arg
 145 150 155

<210> 1858
 <211> 462
 <212> DNA
 <213> *Neisseria meningitidis*

<400> 1858
 atgaccgcct tttcgacaac cttaattttc gtagccgagg gcgcgcttgt agagctgcaa 60
 gccgtgatgg ccaaagccgt caatacaacc gccgcctgca tttttacggt ctgagtaag 120
 gacattttcg atttcccttt tattttccgt ttccagacgg ctgacttccg cctgtttttt 180
 cgcaaaagcc atgccgacgg cgtgcgcctt gacttcatat tttttagctt ccgcacgcgc 240
 ctgttccagt tcgcggggcg agttttgagc cgacaacagc agggcttgcg ccttgtcgcg 300
 cttcattttc tcaatgaccg cctgctgott cgcaaaagcc gactttagc ctgatgggtg 360
 cgacaccgcc aaaccctgac cgacaagcgc gatgatggca atcggttgcc agttattcgc 420
 cagcagtttc acgagattca ttctcgacct cctgacggtt ga 462

<210> 1859
 <211> 153
 <212> PRT

<213> Neisseria meningitidis

<400> 1859

Met Thr Ala Phe Ser Thr Thr Leu Ile Ser Val Ala Glu Gly Ala Leu
5 10 15

Val Glu Leu Gln Ala Val Met Ala Lys Ala Val Asn Thr Thr Ala Ala
20 25 30

Cys Ile Phe Thr Val Leu Ser Lys Asp Ile Phe Asp Phe Leu Phe Ile
35 40 45

Phe Arg Phe Gln Thr Ala Asp Phe Arg Leu Phe Phe Arg Gln Ser His
50 55 60

Ala Asp Gly Val Arg Leu Asp Phe Ile Phe Phe Ser Phe Arg Thr Arg
65 70 75 80

Leu Phe Gln Phe Ala Gly Val Val Leu Ser Arg Gln Gln Gln Gly Leu
85 90 95

Arg Leu Val Ala Leu His Phe Leu Asn Asp Arg Leu Leu Leu Arg Lys
100 105 110

Ser Arg Leu Val Ala Leu Met Val Arg His Arg Gln Thr Arg Ala Asp
115 120 125

Lys Arg Asp Asp Gly Asn Arg Leu Pro Val Ile Arg Gln Gln Phe His
130 135 140

Glu Ile His Ser Arg Pro Pro Asp Val
145 150